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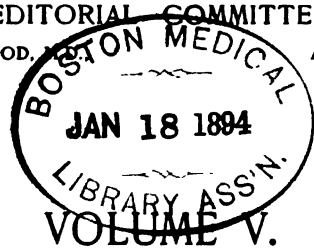

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ORIGINAL ARTICLES.

ACETON AND DIACETIC ACID, THEIR DETECTION AND CLINICAL SIGNIFICANCE WHEN FOUND IN URINE.

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Until comparatively recently there has been so much confusion as to the exact relation and significance of aceton and diacetic acid, while the methods of their recognition have been so vaguely presented, that after repeating the tests and restudying the subject, I have found it necessary to recast the section on the subject contained in my book on the "Practical Examination of Urine," and hope the readers of this magazine will find it presented somewhat more clearly and systematically than has heretofore been the case.

To be especially emphasized at the outset, is the fact that these substances are by no means associated with diabetes mellitus alone, although they were first studied in the urine of this affection.

Aceton.

A peculiar fruity odor of the urine was occasionally noted by the earlier students of diabetes, who were ignorant, however, of its cause, and it was not until 1857 that Petters[1] discovered in certain urines by its peculiar chemical behavior, the substance known as aceton, to which this odor is probably due. Kaulich[2] extended and completed the work of Petters. Numerous other studies followed, the resultant of which was the fact above mentioned that while in diabetes mellitus aceton often occurs in the urine, it is found also in the urine

[1] Petters, Untersuchungen über die Honigharnruhr. Prager Vierteljahrschrift, 1857, XIV, Band 3, S. 81.
[2] Kaulich, Ueber Acetonbildung in thiereschen Organismus. Prager Vierteljahrschrift, 1860, XVII, Band 3, S. 58.

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in other diseases and in small amount even in health. Further, not all urines containing aceton exhibit the fruity odor. Contrary to what was at first thought aceton does not arise from the glycogen in the blood or urine, but from albumin disintegration.[1] Such, of course, could only be its origin where there is no glycemia or glycosuria. In confirmation of this is the fact that physiological acetonuria is enormously increased by a meat diet.

TESTS FOR ACETON.—The accurate study of aceton is best secured by working with the distillate from the urine. By Legal's test, however, even moderate quantities may be recognized in the urine itself, to which indeed the test is better adapted than to the distillate, because parakresol, which also passes over with the latter, strikes a similar reaction. For this reason it is also employed as a preliminary test even when the distillate is afterwards employed.

Legal's Test.—A fresh, moderately strong solution of sodium nitro-prusside is made by dissolving a few fragments in a little water in a test-tube. A few drops of this solution are added to three or four centimeters of the suspected urine, and to the mixture enough liquor sodæ or liquor potassæ to secure a distinct alkaline reaction. The mixture assumes a red color whether aceton is present or not, said to be produced by creatinine even more rapidly than by aceton. In any event the red color changes rapidly into a yellowish brown; but if aceton is present the addition of a few drops of concentrated acetic acid causes it to pass over into a purple or violet red. If there is no aceton this final change does not occur. The purple color also fades in a little while, even if caused by aceton.

On standing a dark blue precipitate may fall, and may be hastened if, after the addition of acetic acid, the solution is warmed.

Legal's test may also be applied to the distillate, but for reasons named is less satisfactory.

For the study of aceton in the distillate, treat a half litre or a litre of urine with phosphoric or hydrochloric acid in the proportion of three cubic centimeters of the acid to each 100 c.c. of urine. Thus treated, the urine is partially evaporated in a distilling apparatus, and the process completed in a retort. The addition of the acid is made to prevent the urine itself from passing over, as it is liable to do, in ebullition. Von Jaksch prefers phosphoric acid.

From ten to thirty centimeters of the distillate are thus obtained, and to it may be applied the following tests:

Lieben's Iodoform Test.—To a portion of the distillate add a small quantity of liquor potassæ, then a few drops of a solution of iodine and iodide of potassium.[2] If aceton is present a yellow precipitate of iodoform is produced *at once*. Should alcohol happen to be present in the distillate, the reaction takes place also, but more slowly, but with aceton it is immediate.

Gunning's Modification of Lieben's Iodoform Test.—The latter source of error may be altogether avoided by the modification suggested by Gunning, who uses ammonium hydrate and tincture of iodine. With these, alcohol

[1] V. Engel, Mengenverhältnisse des Acetons unter Physiol. und Pathol. Bedingungen, Zeitschrift für klin. Med., Band XX, S. 521, 1892.

[2] Friedlander's formula for this solution is, iodine 1.0; potassium iodide 2; distilled water 50.

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causes no precipitate, while aceton does produce one of iodoform in addition to iodine, which falls as a black sediment, even though there be no aceton. The precipitated iodine is soon redissolved if the urine contains much aceton; if it contain but little, the iodoform crystals may be seen in twenty-four or forty-eight hours, resting in a thin layer upon the black precipitate of iodine.

This test may also be used with the urine itself, but with satisfaction only if the quantity of aceton is large.

Reynold's Test.—This test depends on the power of aceton to dissolve freshly precipitated mercuric oxide. It is performed as follows: From a solution of mercuric nitrate in a test-tube yellow mercuric oxide is precipitated by an alcoholic solution of potassium hydroxide. The solution supposed to contain aceton is added and the mixture shaken. The liquid is filtered, taking care that the filtrate passes through clear. To the latter, ammonium sulphide is now carefully added. If aceton is present some mercuric oxide is dissolved, which passes over in the filtrate and shows itself as a dark ring of mercuric sulphide at the point of contact of the two liquids.

The Indigo Reaction of Bæyer and Drewsen.—Heat a few crystals of nitro-benzaldehyde until dissolved. Allow the solution to cool, when the aldehyde separates as a white cloud. Then add the suspected fluid or preferably its distillate, and make the mixture distinctly alkaline with dilute caustic soda. If aceton is present, there appears, first a yellow, then a green color, followed by an indigo-blue, in the course of ten minutes. If only traces of aceton are present, the yellow fluid is shaken with a few drops of chloroform, when a distinct blue coloration of the chloroform takes place.

By this method it is said aceton can be easily detected in a dilution of 1 part to 2500, if the distillate is used. Even with undistilled urine, by the aid of chloroform, it can be detected if present in the proportion of 1 to 1000.

Pyroracemic acid, aldehyde and acetophenon are the only other substances producing the indigo reaction, and these have not, as yet, been found in urine.

Diacetic Acid.

In 1865 Gerhardt[1] discovered that the urine in certain cases of diabetes mellitus struck a red reaction with a solution of ferric chloride. This reaction was ascribed to diacetic ether or ethyl diacetate, a substance which splits up readily into aceton, alcohol and carbonic acid. This appeared reasonable, because both alcohol and aceton had been found in diabetic urine. Deichmuller[2] and Tollens,[3] however, eventually showed this substance to be diacetic acid, also obtainable from acidulated urine by the action of ether. Other substances, not usually constituents of urine, which strike the same reaction are said to be formic[4] and acetic acids and the cinchona salts; also carbolic and salicylic acids, decomposition products of antipyrin, kairin and thallin. Aceton itself does not respond to the chloride of iron test, although diacetic acid responds to the different tests for aceton.

[1] Gerhardt, Diabetes Mellitus und Aceton, Wiener medinische Presse, 1868, Band. vi, No. 28.

[2] Deichmuller, Ueber diabetische Acetonurie. Liebig's Annalen der Chemie, Band. 209, S. 22.

[3] Tollens, Ueber Eisenchlorid roth farbende Harne Liebig's Annalen, Band. 209, S. 30

[4] Le Noble, who also found formic acid in three out of seven cases of diabetes. American Journal of the Medical Sciences, January, 1887.

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The Chloride of Iron Test for Diacetic Acid.—It is plain, from the above, that while the striking of a red reaction on the addition of chloride of iron to urine, is presumptive evidence of the presence of diacetic acid, it is not conclusive. To secure greater certainty this test is directed by von Jaksch, as follows: To urine, as fresh as possible, add a few drops of a moderately strong watery solution of chloride of iron. If a precipitate of phosphates is produced, remove it by filtration, and to the filtrate again add chloride of iron solution. If a bordeaux red color develops, heat a portion of the urine to boiling and acidulate a second portion with sulphuric acid and extract with ether. Test the ethereal extract with some of a more dilute solution of chloride of iron. Test also the boiled urine, mixing well by shaking. In case the reaction with the boiled urine is feeble, or does not occur at all, in case further, the chloride of iron reaction with the ethereal extract pales after twenty-four to forty-eight hours, and the urine as well as the distillate is found to contain large quantities of aceton, diacetic acid is present.

The precautions described are necessary because of the possible presence of the above-named substances, which exhibit the same reaction. At the same time if the reaction is very vivid, and the conditions favorable to the presence of diacetic acid are present, its presence may be inferred from the primary iron reaction alone. It is further important, however, that the urine should be fresh or decomposition be prevented, because diacetic acid is so quickly converted into aceton.

If the color reaction with the ethereal extract does not fade away, the substance, according to Minkowsky is β-oxybutyric acid, of which diacetic acid is said to be a further oxidation.

Clinical Significance of Aceton and Diacetic Acid.

We are indebted to von Jaksch[1] for most of our knowledge of the difference in the clinical significance of these two substances, which were formerly thought to be of identical import. Nor do the very recent observations of von Engel referred to, while thorough and exhaustive, add much more than to confirm and extend von Jaksch's results.

It has already been said that traces of aceton may be found in normal urine constituting *physiological acetonuria.* Further, aceton is found in cases whose course is usually favorable, and its presence may have little or no significance. Diacetic acid, on the other hand, never occurs in normal urine, and diaceturia is a most dangerous complication.

Acetonuria seems to be a result of continued high temperature, or at least accompanies diseases attended with such temperature, and a lowering of temperature is followed by a fall in the quantity of aceton, while a redevelopment of high temperature is followed by an increase in aceton. Such acetonuria is known as *febrile.*

Acetonuria often acccompanies diabetes, constituting *diabetic acetonuria;* but is not necessarily associated with it or with glycosuria, and while the development of acetonuria in diabetes is sometimes accompanied by very un-

[1] Acetonurie und Diaceturie, Berlin, 1885.

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pleasant symptoms, as headache, loss of appetite and deranged digestion, all of short duration, it is otherwise of little significance except as a possible precursor of the diaceturia which often succeeds it in this disease.

Among other diseases with which aceton has been found associated are certain forms of carcinoma, which have not yet led to inanition; cerebral psychoses accompanied by mental excitement and derangements of digestion.

Very rarely aceton itself is responsible for a set of symptoms in which restlessness, excitement and delirium are the most conspicuous, constituting a sort of autointoxication, the symptoms of which pass away entirely with the disappearance of the aceton.

On the other hand, what is commonly known as diabetic coma, according to von Jaksch, is the result, not of aceton in the blood, but of *diacetic acid*, although it is true that it is often preceded by a long-continued acetonuria. It is commonly observed in cases of far-advanced diabetes. There is added to the usual feeling of weakness and depression, drowiness, which may deepen into coma or pass away, the diaceturia continuing. Sometimes these symptoms are preceded by excruciating muscular pain. As a rule, there is no relation between the amount of sugar and diacetic acid eliminated, although a sudden diminution of glycosuria is sometimes followed by the appearance of a large amount of diacetic acid, by coma and death.

There is also a *febrile diaceturia* which accompanies febrile diseases, among which are the acute exanthemata, pericarditis, pleuritis, perityphlitis, typhoid fever, miliary tuberculosis, tubercular phthisis and pneumonia. It is to be remembered, however, that symptoms of diabetic coma may occur without either acetonuria or diaceturia. Von Jaksch proposes to do away with the term "diabetic coma" and substitute "coma diaceticum" for all of those cases of coma, from whatever remote cause, accompanied by diaceturia.

Finally, there appears also to be an *idiopathic diacetemia* or auto-intoxication, by diacetic acid, unattended by other grave disease such as pneumonia or diabetes, and manifested by vomiting, dyspnea and jactitation, which soon terminates in coma and death. This condition, very grave, but rare in adults, is said by von Jaksch to be much more frequent in children and correspondingly less serious. In such cases the child feels weak, has a thickly-coated tongue, often slight conjunctival catarrh, there is sometimes vomiting, usually constipation, and very little or no fever. In two or three days all of these symptoms, together with the diaceturia, disappear. In other cases nervous symptoms are more marked. Von Jaksch believes that all of these, as well as a certain number of other convulsive attacks in children, are the result of auto-intoxication with diacetic acid.

It is evident that our knowledge of these substances, aceton and diacetic acid, as well as that of the symptoms developed by their presence, is not yet complete; but the statements just made may be considered as representing as definitely as possible our present information.

β-Oxybutyric Acid.—The above statements are not seriously effected by the studies of Hugounenq[1], Lepine, Stadelmann and Minkowski, to the effect that

[1] American Journal of the Medical Sciences, October, 1887.

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this substance and not diacetic acid is the cause of diabetic coma, and which are apparently confirmed by more recent observations. Beta-oxybutyric acid is found in the blood of diabetic patients, is the homologous superior of lactic acid, and is formed from diseased muscle, just as lactic acid is from healthy muscle. Diacetic acid is only a further oxidation of it. Just by what steps it is formed within the body we are unable to discover. The method by which the changes may be brought about outside of the body is, however, very simple; the series then running as follows: glucose, alcohol, aldehyde, aldol, β-oxybutyric acid, diacetic acid, aceton. The recommendation of Hugounenq to use hypodermic injections of alkaline solutions to neutralize the acid in the blood has been followed without permanent benefit. Lepine also advises an alkaline treatment, and says an exclusive meat diet is to be avoided as favoring the development of coma.

These observers say, too, the acid found in the urine in many cases of diabetes is not diacetic acid, but oxybutyric acid.

As to the relation between the two substances, aceton and diacetic acid, the conclusions of von Jaksch, published in 1885,[1] are essentially true to-day, viz., that (1) aceton is an oxydation product of albuminous substances; (2) it is found largely increased in the organism under certain pathological states and then may cause toxic symptoms. If the quantity of aceton produced is enormously large, it unites with certain acids produced in retrograde albuminous metamorphoses, perhaps with formic acid only, producing diacetic acid, perhaps also in part with another series of similar acids, which may even be such volatile substances as are contained in evaporated urine and out of which by oxydation aceton may arise.

THE DIAGNOSTIC IMPORTANCE OF FEVER IN LATE SYPHILIS.

By J. H. Musser, M.D.,

Assistant Professor of Clinical Medicine, University of Pennsylvania; Physician to the Philadelphia and the Presbyterian Hospitals.

In the now classical lectures of Murchisson "On Intermitting Fever," that most distinguished clinician pointed out that in syphilis, at times, fever of an intermitting type was sometimes present. This was particularly true in the early stage of this disease when fever attended the outbreak of the secondary eruption. In rare cases he averred that distinct paroxysmal fever was a manifestation of syphilis in the latter stages. He appealed to the great authority of Sir William Jenner. This observer was quoted as saying, when asked to see an obscure case of intermitting fever, that exhibited a daily chill, fever and sweat and that was not controlled by anti-periodics, that iodide of potassium

[1] Ueber Acetonurie and Diaceturie, Berlin, 1885.

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would cure the patient. Following his advice, the disease soon yielded to the remedy suggested. Baümler since then has called attention to the fever of syphilis with much vigor.

The following case illustrates the importance of considering this symptom (fever) in any case, the nature of which is not clear. I am led to say "considering" because the case was attended by one acute physician and seen in consultation by another. Both refused to consider the moderate febrile range as of any significance.

The patient, a female, aged 40, was taken ill with what was said to be pleurisy and muscular rheumatism in a distant city. Her attendant, a homeopathic physician, did not, from what the patient states, examine closely into the case, and the statements made are from the ideas the patient derived from the physician. It is certain the attack was acute; it was attended by pain in the lower part of the chest and hepatic region; vomiting took place; jaundice did not follow the attack. In a few days the patient had recovered sufficiently to return to her home. Her family physician saw her and discovered a large mass in the epigastrium to the right of the median line. The mass was indurated and swollen. It was tender on pressure and movable with the liver at every respiratory expansion. It seemed quiescent. Considerable pain was complained of at the base of the chest, over the surface of the line. The liver was not enlarged, and there was no evidence of pleurisy.

Two months after the sudden onset of symptoms the writer saw the patient. She had been continuously in bed. The local physicial signs were as above. Hepatic pain continued and there was some perihepatitis. She was not much emaciated; was rather pale but not strikingly anemic in appearance. The skin was dry and rough. There was no edema. The mass in the left lobe of the liver was painful on pressure. It was always more prominent after a meal. It was sore to the patient, and the sense of internal soreness was worse after a hearty meal. Vomiting had been more or less frequent; solid food had to be given up on account of dyspeptic symptoms. For a time nausea was constant. Flatulency was most distressing. The bowels were obstinately constipated.

The patient was subject to attacks of palpitation of the heart and to sinking spells. The latter were attended with extreme weakness, cold extremities, a cold perspiration on the brow, rapid, feeble pulse, while the patient laid in a quiet sleep or semi-conscious state, answering to any call in almost soundless voice.

On examination of the urine it was found to contain a large amount of albumin, hyaline and granular casts, and the specific gravity was 1024.

The patient is of excellent family, in easy circumstances. Her life has been one of anxiety and effort, but highly correct. She has never had any illness, save that incident to a ruptured perineum from childbirth. She has had but one child and never any miscarriage. Latterly she had dyspeptic diarrhea. The family history is most excellent. The husband has never been ill.

REMARKS.—The cardiac palpitation, the swoonings and the gastric symptoms could well be explained by the catarrhal nephritis, which was most

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marked. Moreover, some high tension and accentuated second sound, show that Bright's disease perceptibly influenced the vascular system.

Increase in the soreness and prominence of the mass after meals could readily be explained on mechanical grounds.

The nature of the mass in the liver excited much speculation. Want of accurate knowledge of the nature, and even symptoms of the acute attack, made any attempt at satisfactory conclusions more difficult.

It seemed necessary to determine the position of the mass and its relation to surrounding organs. What is the seat of disease and the nature of the process that would cause a tumor of the characteristics described? Was the tumor of hepatic origin, and if so, was it connected with the gall-bladder and ducts? Was it due to disease of the duodenum, of the pyloric end of the stomach, or of the pancreas? Was it omental? Was it vascular? Each question will be answered *seriatim*, beginning with the last and least probable.

Although an abdominal aortic aneurism gives rise to a tumor in this position sometimes, the local physical signs and general vascular changes did not confirm any notion of its presence in this case.

An omental tumor was thought improbable because the mass was fixed and movable with respiration, and not attended by ascites or any other signs of peritoneal involvement.

Thickening at the pylorus from fibroid change, or malignant disease, was worthy of consideration because of the marked gastric symptoms. Physical signs of dilatation of the stomach could not be elicited. Moreover, hydrochloric acid was present in the ejecta, and in the secretions removed by the tube. Then the vomiting did not occur two or three hours after meals, as in pyloric obstruction. The tumor was more superficial than it is usually found in gastric carcinoma, when at the same time the abdomen is as full and distended as in this case at this time. Indeed, the full rounded abdomen seemed to be against any grave local disease. Disease of the duodenum was excluded for similar reasons and because of the absence of previous symptoms pointing to duodenal ulcer.

Disease of the pancreas, cystic or malignant, had to be considered. The tumor occupied the position in which such disease is found. It was more superficial than a pancreatic tumor. It was manifestly a solid growth and not a mass containing fluid. The size was so great that, if located in the pancreas, it must have caused jaundice and possibly other pressure symptoms (ascites). The stools, which are sometimes characteristic in pancreatic disease, were not so in this case.

The exclusion of the involvement of the above mentioned organs or tissues in the disease under consideration led to the determination that the liver was the seat of the disease. This was all the more strongly confirmed by the fact that the dulness of the tumor was continuous with liver dulness, that the mass was movable with the respiratory excursion of the liver, and on palpation it seemed continuous with the healthy structure of the organ. The tumor was not, in all probability, connected with the bile-ducts or gall-bladder, because its position was out of the usual line of such tumors. The shape was

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far different from that of an enlarged gall-bladder, and it did not move in the direction the gall-bladder takes when the patient takes a full breath. Finally, there was no obstruction of the ducts or vessels, which would have been present if such a large mass had been connected with the biliary passages.

The Nature of the Process.—During the time the patient was under the observation of her family physician the mass diminished in size, so that it was reduced to one-third its original bulk. It now was as large as the fist. This reduction in size was to be considered in determining the nature of the mass. Was it due to an inflammatory process, with or without suppuration? Was it a malignant growth, a carcinoma, or was it a tubercular mass? Unfortunately the early observation of the case was without accuracy and we had no definite knowledge of the febrile range. The presence of suppuration was not thought to be a tenable explanation of the symptoms because of the absence of marked fever and sweats and because the mass lessened instead of increased in size and was always too hard to suppose pus had accumulated.

The general symptoms, lack of emaciation and cachexia, with change in the physical character of the tumor and the absence of any tangible primary disease in other organs, lead to the exclusion of malignant disease of the liver. It was thought that the mass was not tubercular, omental or peritoneal, for similar reasons.

For non-professional reasons, after attending the patient with her usual adviser for a short time, she was put under the writer's care. Before assuming charge, the gravity of the case demanded a consultation with a third. The patient, now ill four months, although not gravely worse, was not improved, and her morale was completely destroyed. At the consultation the various questions just passed upon were reviewed, and we separated with the conclusion, for the benefit of the family, that the mass was inflammatory, and, in view of the fact that it was shrinking and the patient was no worse in general health in the four months of illness, except as explained by the Bright's disease, she would get well. The writer feels confident that the consultant-in-chief went away believing in his heart the mass was malignant.

It has been previously stated the temperature chart was studied and the slight abnormal elevation not considered to be of importance. The writer was not reconciled, however, and, in thinking of possible processes, determined to apply the therapeutic test, the use of iodide of potassium and mercury carefully, as a means to aid in diagnosis.

Iodide of potassium was given with tonic doses of the bichloride of mercury. In a short time the patient took twenty grains of the former drug three times daily without symptoms of iodism. The temperature within ten days resumed its normal variation, the patient increased in weight and strength and the mass perceptibly lessened each week. At the same time in the course of two months the albuminuria manifestly lessened.

The temperature chart was carefully studied. It is not of any significance. It does indicate, however, that an active process was taking place. Its greatest significance is in persistence without cause, over a long period of time, in spite of the presence of a disease of exhaustion in which the temperature

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should be lowered. For the same reason, exhaustion, we would expect the temperature lowered on account of the gastric symptoms and consequent poor nutrition.

It is to be remembered the difficulties of diagnosis arose because of the presence of a suspicious mass in intimate relation with the gastro-intestinal tract, which was violently disturbed. The long-continued, recurrent vomiting, excessive flatulency and obstinate constipation pointed to grave organic disease of the stomach.

The second case to be related is of interest not only because of the marked fever, which was an expression of syphilis, but because of the remarkable and conflicting, certainly confounding, processes present in the course of a short illness.

The patient was a robust man of five-and-thirty, whom I had treated for a syphilitic palmar eczema in September, 1891. He had never had any illness that confined him to bed. He had had myalgia. His father died of organic heart disease, and during his life had repeated attacks of inflammatory rheumatism.

In January of the present year this patient had a severe attack of gonorrhea. Two weeks after its inception, after a rigor, he had severe general pains and high fever. In twenty-four hours the knees and elbows were the seat of pain, swelling and tenderness. The swelling about the elbows was remarkable. The subcutaneous tissues were edematous, more particularly posteriorly, to the extent of six inches above and below those joints, and purpuric spots were observed. The spots rapidly ran together, and a general subcutaneous suffusion of blood took place. The outline of the knee joints was effaced, and some purpura developed about them. The patient had high fever, 103° F.; a rapid pulse; the tongue was heavily and characteristically furred; sweating was profuse and acid. The appearance of the face and decubitus was like that of inflammatory rheumatism. The urine was scanty, high-colored and loaded with lithates; the urethral discharge, which had improved, was not modified during this attack in the first week, and of course the urine was loaded with pus; the gonococcus had been detected. In forty-eight hours the knee joints were free from pain and swelling, but the right shoulder joint was attacked. On the fifth day the left shoulder became the seat of pain.

The swelling and purpura about the elbows disappeared, but they remained painful. The sweats lessened. The fever continued and became more intermitting. By the tenth day the tongue had cleaned, the urine contained less lithates, the urethral discharge had lessened, the joint symptoms subsided except at the left shoulder. In addition to pain, a neuritis of the circumflex nerve arose; paralysis of the deltoid rapidly developed; fever continued.

On the fifteenth day the condition was as follows: The patient was about the room; he was eating well and digesting his food, he was free from rheumatism, he had a moderate gonorrheal discharge, which on examination was catarrhal, the left shoulder was painful when attempts were made to move it, the deltoid was paralyzed and the contour of the arm changed; the arm could not be raised. Notwithstanding the absence of spontaneous pains and any evi-

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dence of joint disease, or of suppuration, the patient had the most marked intermitting fever it was ever my fortune to witness. In the morning the temperature was normal, in the evening it rose to 103°–104° F., and the pulse was correspondingly rapid. Indeed, it was more than correspondingly rapid, and it was this that called my attention to the fever. In the morning the pulse was 100 to 110, in the evening 120 to 140. The fever caused great discomfort at night, kept the patient feeble, and soon his digestion became disturbed. Naturally the condition of the heart was studied more solicitously, but no endocarditis could be discovered. The blood was examined and found free from plasmodia. The spleen was not enlarged.

Failing to detect suppuration, I asked my friend, Dr. Wharton, to examine critically the left shoulder, as well as other joints, to find if suppuration or necrosis was in progress. Osteo-myelitis was also looked for. There was no evidence of any abnormal process in bones or joints.

Knowing well that fever of the type just indicated is sometimes an expression of syphilis, and knowing the patient had the disease, he was placed upon specific treatment. Within the proper time the fever subsided gradually; each day, as the impression of the drugs became more marked, the evening temperature was lower and finally became normal. The unwonted rapidity of the heart did not disappear so quickly; in fact, not until the patient was under treatment several weeks.

The clinical problems in this case were various. The patient first had gonorrhea. He was then seized after a rigor with acute rheumatism with purpura. Was the rheumatism of gonorrheal origin? The high fever, the multiplicity of joints attacked, the purpura, the fugitive nature of the joint involvement, the heavily furred tongue and the "loaded" urine, seemed to disprove this. Moreover, treatment with the salicylates seemed to control the joint affection. The occurrence of rheumatic neuritis is most unusual in the course of an acute attack of rheumatism. The persistence of the fever without any synovitis was a matter of serious concern. The absence of heart involvement and of any malarial affection, and the result of treatment appear to prove that it was an expression of syphilis.

The third case I have to narrate was one of visceral syphilis. The story will be brief. The patient had the disease for four years. She had the facies syphilitica. She was anemic. The spleen and liver were enlarged. The urine was abundant and albuminous, with hyaline and epithelial casts. The immediate occasion for complaint was, in addition to impaired health, pain in the right lung. A well-marked, thickened pleura could be made out on physical examination.

The patient's health constantly broke down; that is, she would become weak and prostrated, and had to give up her light duties. The pain would recur and so-called malaria always developed. Chills, fever and sweats characterized the break-down, and an acute naso-pharyngo-bronchial catarrh coincidentally developed. Her previous medical attendant and the patient herself was so convinced they were due to malaria that quinine and arsenic was constantly exhibited. The exhibition of iodine of potassium was kept up, or re-

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turned to by the patient, who knew the attacks were never controlled without it. On account of the persistent recurrence of the attacks and gradual but sure decline the writer was asked to see her.

During the first six months of the writer's attendance the so-called malarial attacks occurred frequently. During the winter of 1890 the patient was gravely ill, over a long period of time. The enlarged liver and spleen continued, and the capsule of the former was inflamed. Dropsy and albuminuria were marked. The thickened pleura was the seat of pain, and there were abundant râles throughout the chest. A rather abundant muco-purulent expectoration, offensive, was constantly discharged. The bowels were continuously loose over a period of six weeks. The discharge was extraordinary. It was offensive and made up of pus and mucus, and often some blood. The patient undoubtedly had a syphilitic entero-colitis. At times the discharge was so abundant it could not be denied that a gumma of the liver had probably broken down and discharged into the bowels. There was marked gastritis, which interfered with the nourishment.

The temperature was interesting. During the long illness it was marked by intermittency. Its length forbids its publication. It is enough to say that there was always a morning fall and an evening rise, and at the latter period it ranged from 102° to 104° F.

The extensive purulent inflammation, somewhere in the body, at this time, was sufficient to impress upon the temperature the range detailed. During the early and lighter attacks, however, the intermitting fever of syphilis was marked and could be explained in no other way. It is sure that it was present and decided, because competent observers had recognized it and thought it was of malarial origin.

Finally, during the past winter I treated a middle-aged gentleman with syphilitic disease of the nails of the hands and feet, with ulceration. He complained of "heats" in the evening, and the temperature was frequently found to be 99½°–101½°. The subjective sensation and the actual fever disappeared as the influence of anti-syphilitic treatment became manifest.

It seems proper to infer from the above, that fever, either continued or intermittent, is an expression of the activity of a syphilitic process, and that, in an obscure case, its presence, with other symptoms, is corroborative of this specific infective process. The first case teaches the old lesson frequently rehearsed, daily forgotten, that neither wealth, learning or virtue are protective. The invocation of the therapeutic test, while not scientific and a confession of weakness, is fair, as all things are fair in war.

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A NEW AXIS-TRACTION OBSTETRIC FORCEPS.[1]

By William B. Dewees, A.M., M.D.

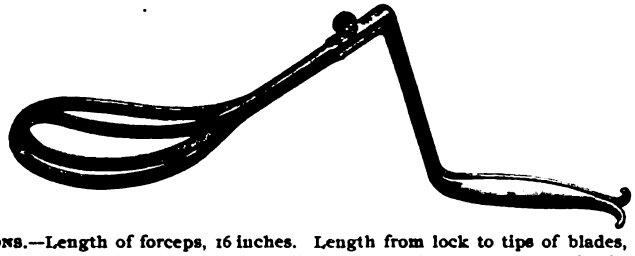
A Founder and Life Member of the International Periodical Congress of Gynecology and Obstetrics; Vice-President of the Pan-American Medical Congress for Kansas; Ex-President Golden Belt Medical Society of Kansas; Fellow of the American Academy of Medicine; Member of the Western Association of Obstetricians and Gynecologists, etc., etc.

Salina, Kansas.

As progressive obstetricians, following Nature's guidance at all times, we are ever directed by the truism, that "real wisdom is always simple."

With regard to the use of the obstetric forceps, it may be said truthfully, that the principle of axis-traction, is conceded by all thoughtful and observing practitioners, to be correct. The day is already dawning when the authorities will hold, that no woman should be delivered by instrumental aid, except by axis-traction. But the various ideas advanced for its production are, however, conflicting, and some are even fallacious.

Fig. 1.



Dimensions.—Length of forceps, 16 inches. Length from lock to tips of blades, 9 inches. Length from lock to perineal curve, 1 inch. Length of perineal curve, 5 inches. Length of axis-traction handles, 5 inches. Average width of blades, 1⅜ inches. Greatest width between blades when closed, 2½ inches. Width between tips of blades when closed, ¾ inch. Weight, 18 ounces.

Being convinced, after timely observation and experience, that the desideratum to fulfil the rationale of the axis-traction principle was still wanting, I endeavored to supply the same. I succeeded in having a forceps made after my own idealization, which I now have the pleasure of presenting before this august body. The only important new feature is the construction of the perineal curve, and providing the same in the handles which serve for *axis-traction*. It is an aseptic, simple, efficient and economic instrument.

To demonstrate more clearly, that the action of this forceps is in strict accord with the acknowledged axis-traction principle, I beg leave to first call your attention afresh to the classical demonstration of the axis-traction principle, as given by Tarnier.

[1] Read before the Section of Obstetrics and Diseases of Women, at the Forty-third Annual Meeting of the American Medical Association, at Detroit, Mich., June 7, 1892.

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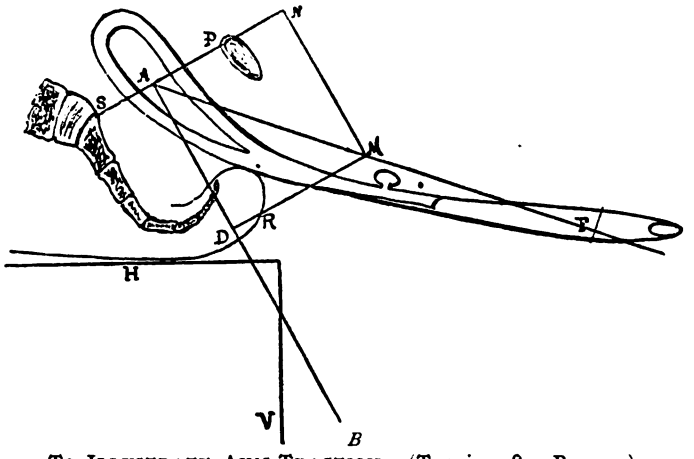
"The figure represents an application of the forceps at the brim. The line A B indicates the axis of the opening which the head must traverse, and, therefore, the direction the tractions must take to be correct. But when the operator pulls upon the handles of the forceps, the tractions he makes are converted into a force represented by the line A F. Supposing that these tractions equal 40 kilogrammes, and they be represented by the distance A M, and we construct upon this line A M the parallelogram of forces A D M N we find that the traction A M is decomposed into two forces—the one A D, which tends to lower the head in the direction of the axis of the brim; the other, A N, representing a vicious pressure which falls upon the pubes. Now, the lines A M, A D, A N present different lengths, which are expressed by the numbers 40, 30 and 26 in round numbers. Therefore, in pulling upon the handles of the classical forceps with a force of 40 kilogrammes, one tends to lower the head in the direction A D with a force of 30 kilogrammes only, whilst involuntarily the pubes is subjected to a vicious pressure of 26 kilogrammes. It must be understood that in this calculation I have taken into account simply the force and the pressures arising out of the act of the operator, neglecting those which proceed from the natural action of the mother's tissues."

FIG. 2.



TO ILLUSTRATE AXIS-TRACTION. (Tarnier after Barnes.)

H. V.—Horizontal and Vertical lines of a table. S.—Sacrum. P.—Pubes.

Barnes, in commenting on this, voices the logical conclusion when he says: "He thus demonstrates that it is impossible to pull in the axis of the upper strait or brim, and to avoid vicious pressure by grasping the handles of the ordinary forceps. Those who object to Tarnier's forceps insist that, by the well-known manœuvre of pulling on the handles with one hand, and at the same time pushing back upon the shanks with the other, the direction of the traction is changed to that of the axis. We are convinced from long experience and many close observations, that the correction thus obtained is inconsiderable, and that Tarnier's demonstration is true. Tarnier next applies a like method of demonstration to the action of the ordinary forceps in the cavity and outlet, showing that in these cases also there is waste of force and vicious pressure."

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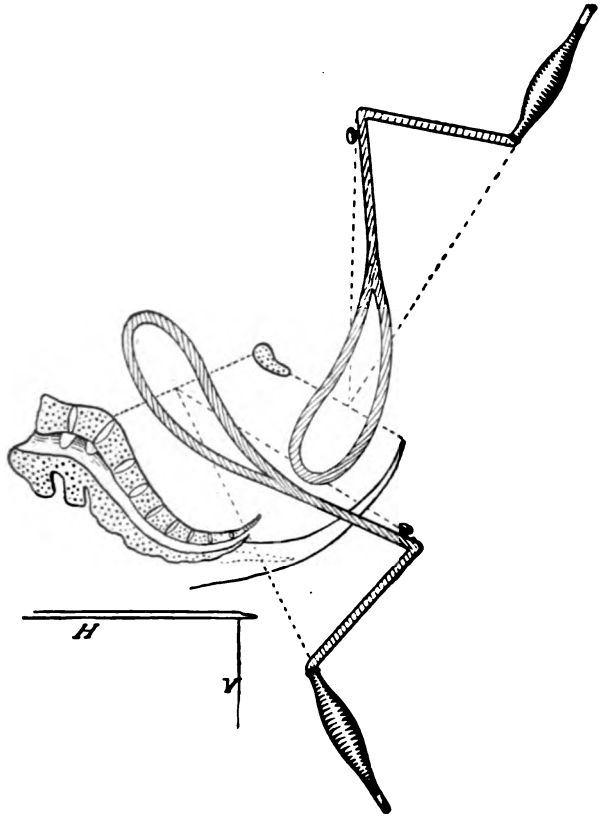
With your mind thus refreshed, let me now call your attention to the following diagram, which will, I trust, demonstrate to you with sufficient clearness to convince you that this forceps fulfils, in the simplest manner, the desideratum of an ideal axis-traction instrument in strict conformity with the rationale of the axis traction principle.

With the patient placed in the left lateral (English) position, obliquely across the bed, with the nates brought to its verge, and by the use of this forceps, it is claimed:

FIG. 3.



TO ILLUSTRATE AXIS-TRACTION WITH THE NEW AXIS-TRACTION FORCEPS.
V. H.—Horizontal and Vertical lines of a table.

(1) That axis-traction is made perfect, easy and simple.

(2) That axis-traction at the superior strait is perfect, and so continues during the entire passage of the fetal head, following the curve of Carus from the brim to the outlet, with ease and safety.

(3) That the axis of the blades of this forceps lies constantly parallel with the axis of the parturient canal as the head descends, thus enabling the accoucher to fulfil a most important aim in forceps operations, namely: to deliver with a minimum amount of force.

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(4) That the operator is enabled to seize the head more advantageously at the brim, and the facility with which the head can be aided to descent in the axis of the superior strait, as well as to follow the axis of the pelvis, would seem scarcely possible to one accustomed only to the ordinary forceps.

(5) That it is easy of application, and in its triple character—having a moderate head curve, a moderate pelvic curve, and a decided perineal curve (the atter is provided in the handles which serve for traction)—it has all the advantages of axis-traction with plenty of power and perfect control, and with the simplicity of the ordinary forceps.

(6) That it does away with the complicated, cumbersome and expensive attachments of the Tarnier and other models. The indicator is constantly in the sentient hands of the operator, who thus at every moment knows, through his *conscience musculaire*, the direction of traction as well as the resistance. Thus preserving intelligent observation of the progress of labor and regulation of the forces employed, which alone can be done by the use of the hands in executing traction and extraction.

Now, while to Tarnier must be accredited the distinction that he has demonstrated the correctness of the axis-traction principle, it must be remembered also, that he failed in his efforts to produce an instrument wherewith to carry out this principle in practice in the simplest and most satisfactory manner to the profession. Thus we find that the Paris Obstetrical and Gynecological Society has condemned the Tarnier axis-traction forceps as being "*complicated, cumbersome* and *expensive*;" that Tarnier himself abandoned the Tarnier curve by restoring to his instrument the ordinary pelvic curve; that Dr. W. T. Lusk, of New York, declares, "experience does not sustain the idea that the handles of the Tarnier forceps furnish an inflallible guide to the direction in which traction should be made." Among other objections from various authorities may be noted such as, "the Tarnier forceps when clamped to the infant's head acts counter to nature, by interfering with rotation and preventing relief from pressure upon the head during the interim of contractions." "The lateral or leverage action which so much economizes traction force and lessens pressure upon the pelvic walls is lost by the Tarnier forceps." "The blades of the Tarnier instrument may slip from the head without warning to the operator." In short, it may be said that the idea upon which the Tarnier instrument is constructed is not only fallacions but detrimental to proper axis-traction. There is no sounder principle known than that in the skilful use of forceps, nature should be imitated by frequently unlocking the blades that the head may rotate and accommodate itself to the pelvic canal. The ideas that traction, whether with pulleys, tapes or rods must in no wise be connected with the handles but with the blades, and that the rods must be attached to the blades by a movable joint which alone secures free motion to the handles in all directions, are certainly erroneous.

Drs. Barton Cooke Hirst, Allen H. Smith, Robert and Fancount Barnes, Pajot, Hubert, Morales, Aveling and others of high authority, all recognize the fact that axis-traction can be made correctly and effectually without any such complicated and cumbersome attachments to the ordinary forceps.

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PHIMOSIS AND CIRCUMCISION.[1]

By Horace G. Wetherill, M.D.,
Colorado Springs, Colorado.

For many years it has been my habit to examine the prepuce of boys borne by my patients, and to remedy in one way or another any tendency to obstructive phimosis.

This has been done directly after delivery, or within a few days, as a rule; but if, for any reason, nothing has been done at such time, the child is sure to undergo subsequent inspection and operation, if the urinary flow is not free and painless, or if there are other unexplained reflex symptoms.

That a tight, long or redundant foreskin may be a factor in the production of local disease and of general nervous disturbance will be accepted. That such conditions tend in many cases to produce undue sexual excitement, and even orgasm, there is little doubt, and, as a consequence, masturbation is more easily made a habit by boys in whom this state of things exists.

The intimate association of phimosis and various nervous phenomena was first forcibly brought to my attention when on the staff of the New Jersey State Lunatic Asylum; it was made the subject of an investigation, some of the results of which were published.[2]

As a demonstration of a rather striking connection between epilepsy and phimosis, I desire to quote a paragraph from this article. It says: "Thirty-three male epileptics are at present (July 3, 1884) in the institution, and out of that number twelve were found to have phimosis, and ten elongated foreskins to an extent which might be mischievous. Twenty-one of these men are known to be, or admit having been, habitual onanists, and the actual number addicted to the habit is probably much larger."

That twelve adult male epileptics out of thirty-three should be found to have non-retractable foreskins, and ten more long and redundant ones, is surely not a coincidence, and we cannot escape the conclusion that there is some cause and effect about it.

Vesical and renal diseases resulting from the damming back of the urine by a tight prepuce are frequently met, and many boys are punished for wetting the bed and clothing when circumcising would do more good.

I once saw a little fellow who passed his urine through the urethra only to balloon the foreskin and drop and dribble for half an hour. The urine was offensive and ammoniacal, and he was altogether in a sorry plight—a confirmed epileptic and a physical wreck. A patient came to St. Francis Hospital, in Trenton, N. J., with a urinary fistula following a supra-pubic cystotomy for tumor of the bladder. The operation was done by a well-known and skillful surgeon of New Jersey. The fistula closed perfectly after a time, but the patient had no relief from his pain and frequency of urinating. He had a long

[1] Read at meeting of Colorado State Society, Denver, Col., June 22, 1892.
[2] Boston Medical and Surgical Journal, January 15, 1885.

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but not very close foreskin, the amputation of which was at once followed by perfect and permanent relief of all symptoms, indicating that this had been the chief factor in the production of his urinary distress.

Good results had invariably followed my operations, and having never had an accident, I was naturally an earnest advocate of circumcision whenever it seemed likely to do good. Now I regard the operation as one likely to be attended with some risk.

In January last I delivered a primipara of a strong and vigorous male child at full term. The nurse, in washing the baby, noticed and asked my attention to a little pimple or blister just at the opening in the foreskin. The foreskin could not be retracted, and only the very smallest opening could be found in it, so that it was feared the child would not be able to pass his urine at all. This, however, he did accomplish after many hours, with evident effort and pain. I decided to amputate the foreskin, and on the next day did so. He bled freely, but no vessels spirted, and I put a dressing on firmly, hoping in that way to stop the oozing.

The bleeding continued, and even seemed to be freer as time passed; new dressings were applied, styptic cotton was used, Monsell's solution was tried, but without anything more than a temporary stay of the flow. There seemed to be no disposition to clot-formation, and the penis was so small adequate pressure could not be secured. The freest bleeding was from the surface of the glans where the prepuce had been separated from it by the probe, beads of blood (like perspiration) welling up from the pores, and I believe the result would have been the same had I simply broken up these adhesions and retracted the foreskin.

The amount of blood lost was appalling, but he bore the drain well, keeping his strength till the day of his death—four days after operation. His little body was then completely bloodless. There was no history of hemophilia in the family of either parent.

I am led by the course of this case to question the old belief that infants bear hemorrhage badly, as the proportion of blood lost was tremendous as compared to the weight of the body, and the child maintained his vigor until within a few hours of his death, and I was not entirely without hope of arresting the bleeding, and saving his life, until the last day. Since this occurrence I have been told of the death of two children in one family in Newark, N. J., from the same cause, but the parents were known to be "bleeders" in this instance, and the operation was done as a religious rite.

I feel convinced that simply breaking up adhesions and retracting a redundant foreskin will not in many cases do away with established bladder or reflex symptoms. If done at birth or before trouble has begun, it may, and in all probability will, do much to prevent disease, but it can never entirely supersede circumcision nor encroach upon its peculiar field of usefulness. All male infants should be examined at birth, and this breaking up and retraction done at once, if any need for it exists. If the nurse will then draw back the foreskin each day, wash away all accumulated smegma, and anoint with vaseline or cold cream, readhesion will not occur and the child may be saved much trouble in after-life.

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My observation, experience and mature deliberation have led me to conclude in reference to this matter :—

1. That each male child should be examined at birth for obstructive phimosis when we examine for imperforate anus.

2. That the prepuce should be retracted fully, and all adhesions to the glans broken up, all smegma be removed, and the nurse be instructed to retract, wash and anoint the parts daily for two weeks and once each week thereafter.

3. That a long and redundant foreskin, though freely retractable, may be a cause of local and reflex diseases, may occasion, or at least exaggerate, an undue sexual appetite, and so predispose to masturbation, sexual excesses, and ultimately to venereal diseases.

4. That such cases should be circumcised, as should the cases where the foreskin is not retractable.

5. That routine circumcision of all male infants is to be condemned. That the prepuce plays an important part in the human economy, and should not be amputated except for good and sufficient reasons.

6. The unhappy experience of the fatal case cited demonstrates that this little operation may be attended by grave dangers, and should be undertaken with this risk in view and only after we are assured that the parents' families are not bleeders.

7. That infants may endure a copious hemorrhage far better than we have heretofore supposed.

MEMORANDA.

THE CONFUSING SYMPTOMS OF MALARIAL ANEMIA.

THE following case appeared in the dispensary service of the University Hospital in April, 1892, and is reported because of its confusing symptoms. J. G., aged 43, married, a sheet-iron roller. The family history is negative. He never had scarlet-fever, nor any other serious disease except malaria fever, which he asserts he has suffered from every year for twenty-four seasons (this was looked upon by the patient as such a natural thing for him to suffer from that he did not give it in his history until his third or fourth visit). Four years ago he fell off a wall and shortly after had an attack of what his doctors called kidney trouble.

Every February since that time he has become exceedingly weak and pale, has always at such times passed a large amount of urine; has become edematous, especially under the eyes, and has had numbness in his limbs. The attack lasted usually about two months, and spontaneously disappeared, the man being again

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able to continue his laborious work. The present attack began as the others had begun in February, 1892. He at present, April, 1892, is waxy, pale, his lips are bluish-white, there is marked edema of the whole body, his bowels are constipated and he has much vertigo and palpitation of the heart. He has occasional spells of asthma. He passes much urine, the apex beat of the heart is faintly felt just outside of the nipple line, the first sound is short and lacking in muscular character. There are no organic murmurs. At the base of the heart, however, and in the vessels of the neck, are well-marked functional murmurs due to the extreme anemia. The urine has a specific gravity of 1020, and contains no albumin and no tube casts. Splenic and liver dulnesses are about normal. Examination of the blood showed 1,800,000 red blood corpuscles, and 25 per cent of hemoglobin. There is marked poikilocytosis. On the fourth visit, he had passed in the previous twenty-four hours, eighty-three fluid ounces of urine, which contained 512 grains of urea, contained no albumin but a few hyaline casts. The blood count this visit, notwithstanding the fact that he had been on full doses of iron and strychnia, was 981,000 red blood corpuscles, with 18 per cent. hemoglobin. It was carefully examined with a high power for Laveran's organism, but none were found. At this visit a history of malaria was obtained, and he was put upon ascending doses of Fowler's solution. He at once began to improve, and the blood condition rapidly became better. At the end of a month, the hemoglobin was 58 per cent. with 2,300,000 corpuscles. He walks with a springing step, has no dizziness nor dyspnoea and asserts that he is perfectly well.

Note of June 14, 1892, is as follows: The skin is red in the face, and he has the appearance of a perfectly healthy man. The hum has disappeared from the vessels of the neck. There is no edema anywhere. He has been taking nineteen drops of Fowler's solution of arsenic three times a day for three weeks, with two five-grain Blaud's pills t. i. d. The arsenic was decreased to five drops three times a day. On July 2, 1892, the blood count was 3,356,250 red blood corpuscles with 80 per cent. of hemoglobin. Except for some pain along his sciatics, the man seemed to be entirely well. His pain proved to be afterwards probably due to the large doses of arsenic, as it entirely disappeared with the cessation of that drug. He was now allowed to return to work again, but as he took a regular hand's place, working eight hours a day before the rolls, he soon began to fail and was forced to stop work again. He, however, soon regained his good condition upon stopping work. This case is remarkable for the difficulty in diagnosis until after it was thoroughly studied. When first seen he was the picture of a man suffering from catarrhal nephritis, and was shown to a ward class as a probable case of that disease. Repeated examinations of the urine, however, showed a continuous absence of albumin and casts and presence of a normal amount of urea, and this diagnosis was necessarily abandoned. The condition of the blood, which was repeatedly examined and found to have a marked diminution of red corpuscles with variations in their forms, gave rise to the suspicion that it was a case of pernicious anemia, notwithstanding the fact that hemoglobin was more reduced than is usual with that disease. The absence of an enlarged spleen, with a failure to find organisms in the blood

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strengthened the suspicion. But the distinct malarial history which was obtained, and the rapid improvement of the patient under arsenic, and his final recovery, led to I believe a proper disgnosis of malarial anemia.

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CLINICAL DEPARTMENT.

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[Service of DR. J. WILLIAM WHITE].

REPORT OF SURGICAL OPERATIONS AND INTERESTING CASES, FOR MARCH, APRIL, MAY AND JUNE, 1892.

1. CARCINOMA OF STOMACH; EXPLORATORY LAPAROTOMY; RECOVERY FROM OPERATION; DEATH IN THREE WEEKS FROM EXHAUSTION.

Mrs. S. S., white, aged 48, was admitted with the following history: She had for two years been troubled with dyspepsia. For six months she had had frequent attacks of vomiting which came on without reference to the time of taking food. The vomitus often contained bits of coagulated blood. Weakness and anemia were progressive.

On admission, cachexia was pronounced; there was frequent vomiting of coffee-ground materials, aversion to food, constipation and absence of pain. A hard nodular mass palpable in the umbilical region a little to the left of median line was discovered.

An exploratory laparotomy was performed. The fundus and nearly the entire anterior wall of the stomach were found to be the seat of a firm nodulated growth. A gastro-enterostomy was manifestly impracticable. An exploratory incision was made into the neoplasm to determine the practicability of a Mickulicz operation for enlarging the calibre of the pylorus. The thickness of the growth proved so great as to render the latter operation hopeless, operative interference was abandoned and the wounds closed.

The abdominal wound healed by primary union without rise of temperature. The patient failed progressively, however, vomiting and aversion to food continued and death from exhaustion ensued three weeks after the operation.

The tumor proved to be a cancer of the colloid type.

2. ABSCESS OF LIVER; EVACUATION; DEATH.

Christian C., American, aged 38, was a hostler by occupation, one of a family of nine, seven of whom were dead, one of these died of phthisis. The patient had had malaria and typhoid fever; always healthy until January, 1892, when he began to experience severe coughing with gagging upon rising, nausea and acid eructations. There was no pain further than a stitch in his right side upon deep inspiration. No history of dysentery was elicited. Patient had resided in Philadelphia for many years.

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Upon admission the above symptoms were well marked, with a distinct bulging of the lower right chest and belly wall over the liver. On February 6 he was transferred to the surgical wards and an immense collection of pus liberated through a longitudinal incision half way between the linea semilunaris and the linea alba. The wound was drained and packed. His temperature, previously hectic, now came down to normal and ran along thus until February 27, when hectic fever again set in, marked by excessive sweating; appetite remained good, bowels normal.

On March 26 he was again operated upon, and an incision opening up the chest cavity between the tenth and eleventh ribs made, and another enormous collection of pus liberated; the cavity was curetted and drained. Temperature now became very irregular, ranging from 97° to 104° with a varying pulse, 98 to 140. Patient died on April 12.

3. CANCER OF RECTUM; LUMBAR COLOTOMY; RECOVERY.

Mrs. Mary O., white, aged 38, was admitted, with the following history: She had frequent attacks of rheumatism, but otherwise had enjoyed excellent health until one year ago, when she began to be annoyed by a constant sense of fulness in her rectum. She discovered about the same time a small, firm, nodular mass near the anus which she took to be a pile. Two months later a troublesome diarrhea set in. The stools were frequent, small, very offensive, and were composed almost entirely of blood and mucus, but her passages were not painful. This diarrhea has since persisted. One week ago severe neuralgic pains set in in her left thigh and leg. No history of syphilis could be obtained.

Her mother had died of cancer of the esophagus, one brother of "an affection which ate away his nose" (epithelioma?), and one brother of pulmonary tuberculosis.

On admission the patient had diarrhea, the passages being unformed, offensive and containing very considerable blood, but little fecal matter (chronic obstruction), severe neuralgic pains shooting down left thigh into leg. A small, firm, hazel-nut sized ulcerating growth presented externally, near the sphincter. A firm nodulated mass was felt in the rectum, extending from half an inch above the anus to beyond the reach of the finger. Diffuse pain in abdomen, not increased during or after defecation.

A lumbar colotomy was performed. On the evening of the second day the temperature rose to 105°, and all external stitches were removed. The temperature fell, and the patient has since done well.

4. SYMPTOMS OF ACUTE INTESTINAL OBSTRUCTION; EXPLORATORY LAPAROTOMY; DEATH.

Thos. Coyne, white, aged 33, was admitted with the following history: Three days before he came into hospital he had received a blow upon the abdomen which was followed almost immediately by severe vomiting, which proved most persistent, but which did not become stercoraceous. There was marked constipation and abdominal pain.

Condition at time of admission: patient very weak, almost in collapse; vomiting frequent but not stercoraceous, abdomen somewhat tympanitic and

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slightly tender to the touch. Slight dulness in right iliac fossa and tenderness at McBurney's point, which seemed rather more marked than that found elsewhere in abdomen. Rectal examination proved negative.

An incision was made in the right iliac fossa, which was deepened until the peritoneum was exposed. The subjacent structures were then as carefully examined as was possible without opening the peritoneal cavity. Nothing abnormal was discovered. The wound was closed and a second opening made in the median line, this time opening the peritoneal cavity. Evacuation was not resorted to, but the intestine was brought loop by loop to the external wound and carefully examined. An opening in the omentum of considerable size was discovered, through which passed several inches of moderately congested intestine. The gut was freed, and as no other possible cause for the symptoms could be discovered, the wound was closed.

The patient died of exhaustion a few hours after the operation. The result of the post-mortem was negative, showing only an old appendicitis with obliteration of the lumen of the process.

5. STRANGULATED INGUINAL HERNIA; HERNIOTOMY; RECOVERY.

F. K., white, aged 33, was admitted with a strangulated inguinal hernia. A radical cure had been performed six years before; the hernia reappeared, however, at the end of the second year. Since this time the patient had worn a truss. On the day before admission he slipped while walking, and the hernia descended. Attempts at reduction were without success, and he was sent to the hospital.

On admission: Constant vomiting and great abdominal pain, but general condition fair. A large complete oblique inguinal hernia of the mixed type, giving no impulse on coughing, the tumor being tense, painful and tender.

Taxis proved unavailing. The sac was laid open and found to contain bowel and omentum, which were deeply congested but not gangrenous. The constriction was relieved, the omentum tied off and the gut reduced. The external wound was then closed.

The wound united by primary union. The patient was discharged wearing a truss in one month.

6. STRANGULATED INGUINAL HERNIA (CONGENITAL); RADICAL CURE; RECOVERY.

O. B., white, aged 28, had had an oblique inguinal hernia since his fourteenth year. He had worn a truss continuously up to six months ago, but had then removed it, thinking himself cured. He had had no trouble until two hours before admission to this hospital. He had exerted himself in running and the hernia had descended into its old position. Symptoms of strangulation rapidly developed, and he was transferred to the hospital.

Taxis proving unsuccessful, the sac was laid open. It was found to contain congested bowel, which was in contact with the testicle. The constriction was relieved, the gut returned to the abdominal cavity, and a Macewen's operation for radical cure performed.

The patient did well; the wound healed partly by primary adhesion and partly by granulation.

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7. STRANGULATED INGUINAL HERNIA (CONGENITAL); HERNIOTOMY; RECOVERY.

W. N., white, aged 22, a huckster by trade was admitted to the hospital with an inguinal hernia, tense and tender to the touch, and giving no impulse on coughing. Vomiting was present, but general condition was good. The patient on being questioned said that he had been ruptured eight years before, but had never worn a truss continuously. In the pursuit of his avocation he would at times cry his wares with more than usual vigor, and his hernia would come down. Reduction had always been easy until its last descent, one-half hour before, when it could not be put back. Patient experienced great pain, and applied to the hospital for relief.

Taxis proving unavailing, the sac was laid open. It was found to contain bowel and omentum, and to be of the congenital variety, the contents being in contact with testicle. The intestine and omentum were deeply congested but not gangrenous. The constriction was relieved, the omentum tied off, the cord separated and the sac cut off below a ligature.

8. OBLIQUE INGUINAL HERNIA; RADICAL CURE; DEATH FROM TYROMA.

F. S., white, aged 32, was admitted with oblique inguinal hernia upon which he wished the radical cure performed. The patient was the subject of focal epilepsy, the convulsions commencing invariably in the left leg. During the convulsions, which were of frequent occurrence, the hernia would slip past the truss into its old sac, giving the patient, after his return to consciousness, much pain.

Macewen's operation was performed. The patient did well for four days. His convulsions then became frequent, stupor set in, which rapidly deepened into coma, the left leg, at first spastic, became paralyzed, and the patient died on the tenth day. The wound had closed by first intention. The necropsy demonstrated a tyroma at superior third of ascending frontal convolution of the right hemisphere and recent disseminated tuberculosis.

The operation cannot be considered to have any relation to the fatal result in this case.

9. STRANGULATED HERNIA; GANGRENE; INTESTINAL ANASTOMOSIS; DEATH.

Aug. St., aged 22. His hernia was of ten years' standing. Two days before admission the hernia came down, and soon became painful; by the following day the tumor had increased in size, and vomiting set in. At the time of admission the tissues surrounding the tumor were inflamed and edematous; general condition bad; fecal vomiting, pulse weak and running; temperature elevated; suffering intense.

A large incision, with careful dissection, soon liberated the strangulation, but the gut had been down forty-eight hours. Gangrene had set in, therefore intestinal anastomosis was imperative. The strangulated knuckle was cut off, and a V-shaped piece of mesentery was excised, the cut edges of which were rapidly whipped together with a fine silk continuous stitch. The two cut ends of the intestines were now overlapped for a distance of about six inches. The ends thus placed were stitched together by Lembert's continuous suture, running along the line of the mesenteric attachment. A four-inch incision now opened the lumen of the gut, on each cut end.

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The lower cut edges were rapidly sewed together, thus making the gut continuous below; the outer edges of the incision were whipped like those of the mesentery. Being brought into opposition, the edges (whipped) were inverted so that they occupied the lumen of the gut. The serous surfaces of the cut ends, throughout the position of the four-inch incision, were united with Lembert's suture. The open ends were now puckered up and inverted into the lumen of the bowel and the serous surfaces stitched together. The method is almost identical with that recently described by Abbe, and advocated by him as preferable to the use of bone or catgut rings. The mass was returned to the abdominal cavity and the external wound drained, sewed up and dressed.

The patient died next morning without having reacted.

10. LAPAROTOMY FOR SUPPURATIVE APPENDICITIS; RECOVERY.

Samuel M., aged 25, admitted March 26, with a history of several previous attacks which had yielded to medical treatment. When admitted he had marked hectic temperature with edema of the right iliac and upper lumbar regions, and excessive tenderness.

On incision through the linea semilunaris and opening of the peritoneum, the abscess cavity, due to the previous attacks, was demonstrated and walled off by adhesions. The appendix was so matted to surrounding structures that it could not be recognized. Cavity was washed out and drained. Patient discharged on April 26 cured.

11. OVARIOTOMY FOR HYDROSALPINX; RECOVERY.

M. L., aged 27, admitted April 1. She had pelvic trouble for about one year prior to her admission, for which she had been treated, in the out-patient department.

Her uterus was found to be bound down, while to the right a large fluctuating tumor could be felt.

The right ovary was found to contain a large collection of serum, while the left showed a chronic inflammation. Both were removed, and the patient made a good recovery.

12. OVARIOTOMY FOR PYOSALPINX; RECOVERY.

Caroline B., aged 32, was admitted on April 2, with history of gonorrhea some months prior to her admission. On the right side was an intensely painful tumor.

Both tubes were enlarged and filled with pus. The adhesions were numerous and firm and the right tube ruptured while it was being separated. The abdominal cavity was washed out and a glass drainage tube used. On the fourth day the tube was removed, and on May 26 she was discharged healed. On July 5 the patient reported that she still had some tenderness in the right ovarian region, but otherwise felt well. She has menstruated twice since.

13. FIBROID OF UTERUS; PURULENT OVARIES; SUPRA-VAGINAL HYSTERECTOMY; DEATH.

Mrs. E. B., negress, aged 37, admitted with large, slightly moveable, tender, uterine tumor. The patient was married but had had no children. She had noticed the growth but one week before admission. Her general health had always been good.

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During the nine days which elapsed between admission to the hospital and operation, her temperature remained constantly somewhat above normal, but never assumed a hectic type. She complained during the time of considerable pain.

A supra-pubic hysterectomy was performed. The uterus was found to be the seat of a hard fibroma, of the size of an orange. Both ovaries were cystic and were filled with an offensive pus. One of these cysts broke during its removal, and the contained pus escaped into the peritoneal cavity.

The vermiform appendix was tightly adherent to the fundus uteri anteriorly. The uterus was firmly bound down in the pelvis by numerous adhesions. All adhesions being severed and its normal connections being divided, the uterus was removed through the incision in the usual manner.

A long rubber drainage tube was passed through the opening in the vagina and secured at lower angle of wound, and the abdominal wound was closed.

Subsequently the tube was washed out every eight hours, and the patient was freely stimulated. She became, however, markedly septic, and died on the third day after the operation. The autopsy showed purulent peritonitis.

14. MYXO-FIBROMA OF UTERUS; SUPRA-VAGINAL HYSTERECTOMY; RECOVERY.

Mrs. M. C., white, aged 42, admitted with a large semi-fluctuating uterine tumor, which she had noticed for the first time nine months before admission, and which had rapidly increased in size since first observed.

Patient's family history was negative. She was married and had borne three healthy children. At time mentioned, her tumor was of the size of a child's head, and painless. It was slightly tender upon pressure. The uterus was retroverted. Constipation obstinate. Temperature hectic in type, ranging between 98° and 104°.

A supra-vaginal hysterectomy was performed, and the stump treated by the extra-peritoneal method. No adhesions or other complications were encountered.

The woman's temperature fell at once to normal where it has since remained. The constricted portion of the stump sloughed away on the tenth day. Recovery was rapid and complete.

15. LAPAROTOMY; REMOVAL OF BOTH OVARIES FOR MULTIPLE FIBROIDS OF THE UTERUS; BOTH TUBES FOUND TO BE THE SEAT OF A CHRONIC SALPINGITIS; DEATH.

M. L. B., aged 45, admitted on January 6, with a history of severe pelvic pain and persistent hemorrhage from the uterus. Examination of the uterus failed to furnish a positive diagnosis, but it was thought to be carcinomatous. By local treatment her condition was so much improved that she left the hospital February 6, only to return, with her old symptoms exaggerated. On April 2, 1892, her abdomen was opened, and the uterus found to be the seat of multiple fibroids, and the tubes of a chronic inflammation, with dense and numerous adhesions. Both ovaries and tubes were removed and the abdominal wound closed without drainage. The following day peritonitis set in, with excessive tympany, increasing until her death, on April 4, 1892.

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16. TRANSVERSE FRACTURE OF PATELLA; BARKER'S OPERATION; BONY UNION.

W. S., white, aged 23, admitted May 24, with simple transverse fracture of patella.

It was treated in the following manner (Barker's method). A scalpel was entered with the cutting edge upwards into joint immediately below the lower edge of the lower fragment. A pedicle needle armed with stout silk thread was entered at this opening and made to pass posteriorly to both fragments. The upper fragment was steadied and pushed firmly downwards, and the point of needle made to project above its upper border. The point of needle was cut down upon, its loop of silk secured, and needle withdrawn. The needle was re-entered at the lower wound and made to pass anteriorly to both fragments, threaded with the loop of silk and withdrawn. The fragments were rubbed firmly together to disorganize interposing clots, and the ends of silk tightly tied, thus completing a loop around the now closely approximated fragments. The ends of silk were cut short, and the insignificant flesh wounds allowed to granulate. The limb was dressed upon a posterior straight splint.

The wounds healed without suppuration; passive motion being commenced in two weeks. The patient was sent out on crutches at the end of the third week, no external support to knee in the shape of bandages, etc., being applied. When seen one month later patient had perfect use of the limb, and there was complete bony union.

17. COMPOUND DISLOCATION OF ASTRAGALUS; FRACTURE OF INTERNAL MALLEOLUS; TENOTOMY OF TENDO-ACHILLES; RECOVERY WITH USEFUL FOOT.

W. J., white, aged 24, while stepping from the front platform of a street car was thrown to the ground, the wheels of the car passing over his left ankle. The astragalus was dislocated forward, the internal malleolus fractured and the joint exposed through a large external wound. The soft parts were severely contused. The tibial arteries were uninjured.

Repeated attempts to reduce the luxation having proved unavailing, the tendo-Achilles was divided and reduction now accomplished by bringing foot to right angle with axis of leg. The limb was dressed upon a posterior right-angled splint.

Subsequently devitalized tissues sloughed away, the wounds granulated and the patient recovered with a useful foot. A plaster bandage was applied at the end of the sixth week.

18. COMPOUND COMMINUTED SUPRACONDYLOID FRACTURE OF FEMUR; WIRED; TRAUMATIC DELIRIUM; DEATH.

S. S., white, aged 52, was admitted with a compound supracondyloid fracture of femur. The line of fracture was oblique from before backward, and from above downward. There were a number of loose fragments in the wound. Pulsation present in posterior tibial and dorsalis pedis arteries. No history of excessive alcoholism was obtainable.

All loose splinters were removed, and the free ends of fragments wired. Drainage tubes were inserted and the limb put up in plaster, a window being left opposite the wound. This was dressed with iodoform and iodoform gauze. *After treatment:* wound dusted with iodoform every four hours, and tubes flushed out daily with a weak bichloride solution.

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The patient progressed favorably until the beginning of the third day, when traumatic delirium set in. The patient's almost constant movement could be controlled only by fastening his outstretched arms to a straight splint which was passed beneath, and at right angles to axis of trunk, and by securing pelvis and lower limbs by bran bags and long side splints. The delirium became maniacal. There was constant screaming and tugging at restraints. Patient refused food and could not sleep without hypnotics. No tremor was present. Death from exhaustion ensued on the twentieth day. The wound had remained healthy throughout, and there had been at no time hyperpyrexia.

19. LUXATION OF ELBOW; COMPOUND LUXATION OF ULNA AT WRIST; FRACTURE OF RADIUS; AMPUTATION THROUGH MIDDLE OF ARM AFTER ATTEMPTS TO SAVE LIMB; RECOVERY.

C. C., white, aged 52, fell upon the street while intoxicated. The shaft of right radius was fractured obliquely through its centre. The right elbow was dislocated backward. The right ulna was dislocated at wrist, a large external wound leading into wrist joint.

Attempts were made to save the arm. The fracture and the dislocation were reduced, iodoform was dusted freely over the wound, the edges of which were not approximated, and lead-water and laudanum was applied to forearm and elbow. The limb was then placed upon an anterior angular splint.

The temperature remained high in spite of daily dressing. In a few days the limb was placed upon irrigation, but the temperature remained elevated and the patient began to show signs of sapremia. In the meanwhile no attempts at repair appeared at seat of injury. Two weeks after the accident the arm was amputated just below the insertion of the deltoid by the modified circular operation.

The temperature fell at once to normal. The wound was dressed once a week, the stitches being removed at second dressing, when the wound was entirely healed except at the lower angle, where a small sinus persisted for three weeks longer.

20. COMPOUND FRACTURE OF ASTRAGALUS; EXCISION; RECOVERY WITH USEFUL FOOT.

H. H., male, aged 34, fell thirty feet, striking upon the soles of both feet. The astragalus was broken, the line of fracture passing vertically through neck of bone. A large wound, behind the external malleolus communicated with seat of fracture. A small piece of bone was chipped from external malleolus. Pulsation was present in the dorsalis pedis and posterior tibial arteries.

Operation.—Wound behind external malleolus enlarged. An incision made behind internal malleolus, and astragalus excised. The articulating surfaces of tibia and of os calcis were sawed off, and these surfaces brought in firm contact by posterior right-angled excision splint. Drainage provided for, and wounds allowed to heal by granulation. The wounds were subsequently dusted with iodoform. A slight amount of suppuration present during separation of devitalized tissues. Limb put up in plaster, with firm union at seat of operation in eight weeks.

21. NECROSIS OF RADIUS; REMOVAL OF DISEASED BONE; CURE.

J. S., white, aged 26, suffered one year ago with typhoid fever. Necrosis

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of left radius followed. When admitted to hospital a free discharging sinus was present at radial side of left forearm which led down to dead bone.

The diseased area of radius was freely exposed, an exfoliation was removed, and all unhealthy bone chipped away with chisel and curette. The external wound was allowed to granulate. Discharged in three weeks cured.

22. COMPOUND DISLOCATION OF ELBOW.

There was one case of compound dislocation of elbow, which was discharged in two and a-half weeks with perfectmotionat joint, no suppuration being present during treatment.

The following cases of compound fracture were admitted during the four months. They are not elsewhere reported.

They were all treated by dusting with iodoform as oozing took place (about every four hours during the first two days of treatment), and dressing with iodoform gauze and wet bi-chloride towels. These were arranged in an imbricated manner so as to thoroughly cover wounds, and yet permit easy access for purposes of dusting and inspection. In no case did suppuration occur.

23. FIVE COMPOUND FRACTURES OF BOTH BONES OF LEG.

Treatment: fracture box.

Case one.	Plaster in four weeks.	Delayed union. Comminution great.
" two.	" five "	Perfect union.
" three.	" four "	Good union.
" four.	Death in one week.	Delirium tremens.
" five.	Plaster in three weeks.	Good union.

24. FRACTURE OF BASE OF SKULL.

Treatment: External auditory meatus sprayed with bichloride solution and with hydrogen peroxide, every two hours, and external antiseptic dressing applied. Pharynx and nasal passages sprayed with hydrogen peroxide every two hours, and nostrils plugged with iodoform gauze. Absolute rest in bed in a darkened room. Ice bag. Calomel.

Case one.	Bleeding from nose and ear.	Complicated by fracture of ribs and clavicle.	Discharged cured in four weeks.
Case two.	Bleeding from nose, ear, pharynx. Subsequent paralysis, inferior rectus left eye, and deafness left ear.	Lacerated wound of ear; contusions.	Discharged cured in three weeks.

25. COMPOUND FISSURED FRACTURE OF SKULL; TREPHINED; RECOVERY.

A. K., white, aged 56, admitted with compound fissured fracture frontal bone, with gutter depression one-eighth of an inch in depth. No symptoms of compression. Cause of injury, fall from a height. Other injuries sustained: compound comminuted fracture of nasal bones, lacerated wounds of face, Colles's fracture of right arm, and sprained left wrist, contusion of knee.

Trephined. Fracture found to involve external table only. Rapid recovery.

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26. TREPHINING FOR COMPOUND COMMINUTED FRACTURE OF THE SKULL; COMMUNICATION WITH NASAL CAVITY; DEATH.

Charles B. Fell thirty feet, striking his forehead. His frontal bone was crushed in, and the dura mater opened up, with the consequent escape of cerebro-spinal fluid. The loose portions of bone were carefully removed and the depressed fragments elevated. The opening into the nose was now enlarged and a drainage tube run through so as to appear at the anterior nares. Wound sewed up and dressed, while the nasal end of the tube was enveloped in iodoform gauze, and retained in place by adhesive straps. The nares were dusted with iodoform powder at the same time. The dressing over the end of the tube was renewed every hour for twenty-four, and then every two. The dressings over the wound were changed daily, and the tube washed out with weak sublimate solution.

The patient developed general meningitis, and died in violent convulsions on the fifth day.

27. TUBERCULAR ARTHRITIS TREATED BY INJECTIONS INTO THE JOINT OF A STERILE TEN PER CENT. MIXTURE OF IODOFORM AND GLYCERIN.

Mrs. M., aged 26, mill hand, who used her feet in working a pedal on her sewing machine. She was on the medical side of the house for some months. While here she was twice etherized and forming adhesions broken up. After the second attempt the knee became so acutely inflamed that she was transferred to the surgical ward. Here a diagnosis of tubercular arthritis was made, and injections of iodoform and glycerin ordered.

They were given directly into the joint, with an ordinary hypodermic syringe, scrupulously clean: one injection every seventh day. After the third application she was enabled to get out of bed and walk with a crutch, and after the fourth week was discharged very much improved.

She, although a very nervous woman, described the pain as that of an ordinary hypodermic, and in no instance was there any inflammation or discomfort following.

28. AMPUTATION OF LEG FOR RAILROAD CRUSH; RECOVERY.

H. C. W., aged 43, admitted on March 10, having sustained a compound comminuted fracture of the left leg.

The patient not reacting from shock, he was operated upon, in the second stage of ether. The pulse, which had been 148, quickly came down, and in twelve hours was normal, temperature also fell to normal.

The patient was discharged at the end of four weeks.

29. AMPUTATION OF THIGH AT UPPER THIRD; DEATH.

F. N., aged 21, railroad crush of leg with severe laceration of the muscles and skin of the thigh. The limb was amputated at the upper third, but the patient did not react, and died two hours after he left the table.

30. AMPUTATION OF FOREARM; RECOVERED.

John McF., aged 40, engineer, had his right arm caught in a fly-wheel, sustaining a compound comminuted fracture. The arm was amputated leaving the attachment of the biceps tendon to the tuberosity of the radius intact.

Discharged in four weeks healed.

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31. REMOVAL OF TUBERCULAR CERVICAL GLANDS.

J. W., aged 35, tubercular family history.

Most of the enlarged glands had undergone suppuration, so that the cavities were curetted and drained.

32. ENLARGED CERVICAL GLANDS; EXCISION.

J. K., white, aged 17, was admitted with enlarged cervical glands. These, twelve in number, were removed through four incisions. Patient was discharged cured in three weeks. No recurrence was then demonstrable.

33. INTERNAL HEMORRHOIDS.

L. L., troubled with hemorrhoids, which came down and became inflamed. The hemorrhoids were each tied off and allowed to slough away.

Discharged in nine days cured.

Two cases of anal fissure were treated by dividing base of ulcer, dilating, and cutting through external sphincter. A cure resulted in each case.

Two cases of fistula in ano were treated by dividing and packing, and one case of hemorrhoids by ligating. Result in these cases: cure.

34. RADICAL OPERATION FOR VARICOCELE; RECOVERY.

H. F., aged 19, admitted April 29. A previous operation in which the veins were tied off was a signal failure. The open operation was performed and the veins tied off in two places; one and one-half inches of veins intervening being cut away and the stumps tied together end to end.

Discharged on May 13 healed.

GEORGE G. ROSS, M.D.,
JAMES D. HEARD, M.D.,
House Surgeons.

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EDITORIAL.

THE APPROACH OF ASIATIC CHOLERA.

For the past six weeks the world has seen the gradual spread of cholera in western Europe and its approach to America, followed by its actual invasion of New York City in the early part of September. The news of this latter fact was delayed, it is said, to secure a competent bacteriological examination of the cases, but the publication of the news in Philadelphia papers before its appearance in New York, shows at least that the announcement even then was premature as far as the New York health authorities were concerned.

Never before have the people of any country viewed the approach of such a dread visitor with such equanimity. This is due partly to the fact that it has been instilled into them that cholera is a disease of filth, flourishing in unsanitary surroundings, among a population whose vitality has been depressed by starvation and vicious habits. They were also impressed with the promptness and vigor with which quarantine has been declared and maintained.

Of course the ideal means of preventing this catastrophe would be the total stoppage of immigration from the first sign of an outbreak in Europe until its total disappearance there. But the world now-a-days has grown so much smaller, and its inhabitants come so much more into contact with each other that this suggestion is wholly impracticable. The course being carried out of quarantining and disinfecting vessels for a certain period is the only feasible one. In no disease is prophylaxis so efficient and treatment so inefficient, consequently the prevention of cholera and its immediate extinction is at present,

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at least, the most vital portion of the subject. The eminently practical article published in the supplement to this magazine, read by Dr. E. O. Shakespeare at a recent meeting of the Philadelphia County Medical Society, covers the whole subject of cholera so thoroughly that it should be read by every practicing physician. Although Dr. Shakespeare calls his article "personal prophylaxis," yet, fortunately, he does not confine himself at all to this division, but gives the history of cholera epidemics, its etiology and treatment.

The prophylactic treatment introduced at the Philadelphia Hospital in the cholera epidemic of 1866 met with signal success there. It consisted simply in the administration by the mouth of weak solutions of sulphuric acid. The results reported by Dr. R. G. Curtin seem to indicate that this simple mode of treatment is most effective. Dr. Shakespeare makes no report on this treatment, either in his recent work on cholera or in his shorter articles. His opinion on this subject would be valuable. This treatment seems still more rational since the demonstrations by Koch of the inability of the comma bacillus to live in acid solutions.

In regard to the treatment in a disease where there is a mortality of at least fifty per cent. it is hard to speak. The indications are, of course, to kill the bacillus and neutralize its poison and further to prevent collapse, to check vomiting and diarrhea. For these latter purposes no new methods beyond those which are commonly used for such conditions have been suggested. For the purpose of an intestinal disinfectant salol seems to be the most efficient, given in the dose of 15 to 30 grains for four or five hours, then every three hours. This drug breaking up in the intestinal canal, theoretically supplies an efficient agent which would tend to control the action of the comma bacillus, and to neutralize its poison.

In regard to the diagnosis between Asiatic cholera and cholera morbus it is impossible to make a definite distinction from the clinical symptoms. The only probable distinction is the previous history—the possibility of exposure to Asiatic cholera or the history of some severe indiscretion in diet.

It is doubtful if the greatest danger to the American continent will be realized this Fall. Probably the disease will not gain much of a foothold in this country at present. The real danger lies in the fact that in the Spring there will exist far more favorable conditions for its spread, because of the approach of a season which gives it greater impetus, and still more because probably the dormant germs will be scattered throughout the different parts of the country, where they will have been carried by the immigrants coming through the Fall and Winter months. The whole country must be on the alert in the Spring to seize and crush out the first appearance of the disease everywhere.

THE FUTURE OF KOCH'S TUBERCULIN.

CERTAINLY, if Koch's tuberculin proves eventually a success in any modified form, or administered according to different methods to even a small class of patients, much credit will be due to Dr. Charles Denison, of Colorado, for

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his intelligent and persistent use of this therapeutic agent at a time when public and professional confidence in its value was at its lowest ebb.

When this substance was introduced to the medical world, Dr. Denison did not believe that the methods of Professor Koch should be rigidly followed. As Koch himself had not had sufficient time to determine the advantages or disadvantages of his new remedy, nor to determine the methods to be followed to secure the most favorable results, the wisdom of such a course can be seen. The favorable results obtained by Dr. Denison from the long-continued use of tuberculin in small doses were shown in this magazine in its issue for March, 1892, in which an individual case of laryngeal tuberculosis in the third stage was treated in this manner, and its progress noted.

Before the recent meeting of the American Climatological Association, Dr. Denison (*Medical News*, September 17, 1892) gives a full report of his views and methods of using tuberculin. Discarding Hunter's modification, and Klebs tuberculocidin, he has clung to the original compound as prepared by Koch.

According to these practical observations, there are three results, produced in lung reactions, *hyperemia*, *congestion* and *necrosis*, which are not different stages as in the progress of a disease, but actually different results due either to the size of the dose or to the susceptibility of the patient. The first effect, that of *hyperemia* of the affected lung is to be looked for in cases in which there exists moderate susceptibility, with encapsulated bacilli or slight tuberculous infiltration, or more advanced conditions if there be a response to very small doses of tuberculin. There is probably an increased flow of blood to the affected part, and also an attraction of leucocytes, as shown in the experiments of T. Mitchell Prudden, who found that when dead bacilli are injected into living tissue, the white blood cells are attracted in great numbers to the point. The same thing happens if the bacilli are alive, according to Dr. Bennet S. Beach, of New York. Here is to be found the process of elongation of these attracted cells, and their conversion into connective-tissue elements for the ultimate purpose of strangulating or suffocating the imprisoned bacilli. This is sufficient, if kept up, to do more than simply arrest the tuberculous process. It inaugurates a cure.

The physical signs of this reactionary effect consist mainly in *a harsh, puerile, or an exaggerated broncho-vesicular breath-sound*, as heard with the stethoscope over the affected or reactionary area. This is an exaggeration of what was heard before the tuberculin reaction, or it is heard in localities in which the breath-sound was previously inaudible or entirely different. It is not an evanescent effect, but usually continues, though in a lessened degree, during the whole course of treatment.

The second division of the reaction to tuberculin, that of local *congestion*, is an exaggeration of the first effect, to the extent of more or less local inflammatory engorgement. The greater swarming of the leucocytes and constructive or defensive cells to the infected areas may be so marked as to somewhat impede the circulation of blood therein, and dyspnea will be caused, with or without an exalted or depressed state of the nervous system—a feverish exhilaration or perhaps a fear of impending suffocation or harm. Sometimes there is even slight hemoptysis. Now, the process of elimination, under certain conditions, is indicated by the local appearance of moist râles, which more or less obscure

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the usually dry condition characteristic of the reaction to tuberculin in the affected tissue. It is here that the danger of reinfection may threaten if these moist râles are found in inefficiently ventilated portions of the lung. If the pyrexia is high, and appears late, especially if it is prolonged in a high point on the following day, the indication of a septic state (which may be the ushering in of a necrotic process in a tuberculous area) is so strong that the greatest caution must be exercised lest the destruction of the most affected spot occur. Previously to this, with or without the advent of moist râles, there is likely to be an increase of expectoration, with increased throwing off of dead, or dead and live, bacilli. This is followed by a decided lessening of expectoration as well as of the contained bacilli. Percussion does not afford nearly as much information as does auscultation. However, if from imperfect lung-ventilation, with or without the presence of moist râles, an occluded region is made known by an increase of dulness on percussion, an increased resonance is quite sure to follow the opening up of the affected lung afterward, and the appearance of the drying and contracting stage, which is the expected later beneficial effect of tuberculin.

The third and worst effect of tuberculin is *necrosis*, which should always be avoided if possible. The increased number of cells and cell-elements that crowd around the tuberculous nodules, or into and around affected areas, furnish a new, highly inflammatory substance, largely composed of giant or nucleated cells. By the multiplication and breaking down of these, the circulation is shut off on the one side, the tuberculous tissue being on the other; the result is death of that tissue, or *necrosis*. The enemy and the containing tissue have both been destroyed together in the general shrinkage and sloughing that have thus been inaugurated. An enormous number of bacilli may then be thrown off in the sputum, which may also contain elastic fibers, shreds of lung-tissue and pus-cells.

The success of treatment with tuberculin rests upon many precautions, or upon favorable conditions to be secured by the physican in charge. Among these are: (1) The proper selection of cases. (2) As thorough a knowledge as possible of the physical condition. (3) The natural resistance of the tissue. (4) The intensity and extent of the tuberculous infection; and (5) The gradation of the dose.

An important consideration is the ventilation of the affected lung. For, if it be true, as the experimenters state, that in culture-experiments five or six days elapse before tubercle-bacilli begin to be reproduced, then when the bacilli are squeezed or carried out from the tissues into the lung-spaces or bronchial tract they must be removed by expectoration before the expiration of that time, or reinfection will occur. It would be better to leave the bacilli encapsulated than not to get rid of them when they are set free. If the action of tuberculin is expected to take place around the root of the lung or large bronchial tubes, the regions beyond may become convenient receptacles for the infectious tuberculous exudates when the contracting or healing process occurs in response to tuberculin. Thus, this question of lung-ventilation is second to no other, and it is a consideration that, it should be acknowledged, gives agreat advantage to those who practise in Colorado, where the air is from a sixth to a third rarefied.

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THE NECESSITY FOR EARLY OPERATION IN CANCER OF THE TONGUE.

FEW affections are more surely fatal, if untreated, than cancer of the tongue, and it is doubtful if any are more distressing to the unfortunate victim when the disease has reached an advanced stage. The pain is intense and is increased by every motion of the tongue, as occurs in swallowing and talking. As a consequence the patient refuses to take sufficient food and starvation adds to his misery. Pain is not confined to the tongue, but the various branches of the fifth nerve sympathize, and the teeth, face and ear add to the racking pain of the tongue. Viscid offensive saliva constantly dribbles from the mouth, and in addition to all these the disagreeable odor which attends the affection is a source of constant discomfort and annoyance.

It becomes very evident, therefore, that cancer of the tongue should receive our most careful attention. The disease under consideration usually is of the epitheliomatous variety, which theoretically is the most amenable to surgical treatment. The fact is that recurrence is the rule after removal of the tongue or portions of it for cancer, and subsequent immunity the rare exception. Surgeons agree that operation gives an average prolongation of life and comfort of but six to eight months. For an affection of this nature, so accessible for observation and operative interference, this result does not speak well for surgery.

In view of these facts it must be apparent that operations are, as a rule, too long postponed to make a radical cure. Undoubtedly this is frequently due to the delay of the patient in consulting a surgeon. On the other hand, the early diagnosis is often a matter of difficulty or, perhaps impossibility, without the aid of the microscope. When it is remembered that a wart, a chronic inflammation, a persistent fissure, a syphilitic lesion, etc., may, and probably will result in epithelioma if not speedily cured, these apparently benign affections become of extreme importance, particularly do they demand close observation if the patient has reached the age of forty or more years. Constant irritation as from a carious tooth may also cause an epitheliomatous degeneration, and as the affection under consideration is from six to ten times more frequent in males than in females it is highly probable that the habit of tobacco smoking is responsible for a large proportion of cases.

The diagnosis is to be made between epithelial cancer and tubercular and syphilitic ulcerations. If tubercular, treatment will probably be without benefit. In the latter, specific treatment should bring about a speedy improvement.

The key-note has probably been struck by Jacobson, who believes that there is a pre-cancerous stage of lingual cancer, and that if recognized and operated on at this period, the results will give a better showing than has heretofore been the case. The importance of dealing radically with suspicious ulcerations of the tongue, very early in their course, should be emphasized. In obscure cases, microscopic examination of the scrapings of the ulcer may decide its true character. Cases suspected to be syphilitic may be put on appropriate treatment for a short time, and if improvement does not set in, operation should

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promptly be performed. Even if the trouble is tubercular, this radical measure is perhaps the proper course. Dandridge has diagnosed a tubercular ulceration by discovering tubercle bacilli in scrapings from the lesion.

The application of caustics to the ulcerations, even in the early stages, cannot be too strongly condemned.

As a considerable portion of the tongue can be spared without inconvenience in swallowing, and with but temporary interference with speech, it would seem better to operate in a benign case than to take the risk of allowing a malignant trouble to involve contiguous structures, thus passing beyond the possibility of relief.

With regard to the operation, it is to be remarked that a constant tendency to simplify the procedure has been noted, and Whitehead's method of removing the tongue through the mouth, by means of scissors, seems to be the best that has yet been devised. In the August number of the *Annals of Surgery* will be found an exhaustive article on the methods of removing the tongue, by Dr. N. P. Dandridge.

BOOK NOTICES.

AN AMERICAN TEXT-BOOK OF SURGERY. Edited by WILLIAM W. KEEN, M.D., LL.D., and J. WILLIAM WHITE, M.D., Ph.D. Profusely illustrated. Philadelphia: W. B. Saunders, 1892.

The need of a new text-book on surgery has been felt for some time. The situation is well presented by the following sentence from the brief preface which introduces us to the twelve hundred quarto-pages that follow: "The great advances which have been made in the science and art of surgery within the last few years, have created a need for new sources of reference, both for the student and practitioner—a need which has been met to some extent abroad, but not so thoroughly in this country." The matter in the volume under review is a new presentation of the entire subject. In its preparation, standard works have been consulted and current literature carefully culled; to this has been added the results of the rich experience of the different authors. Besides those portions which were written by the editors, chapters have been contributed by Charles H. Burnett, M.D., Phineas S. Conner, M.D., Frederic S. Dennis, M.D., Charles B. Nancrede, M.D., Roswell Park, M.D., Lewis S. Pilcher, M.D., Nicholas Senn, M.D., Francis J. Shepherd, M.D., Lewis A. Stimson, M.D., William Thomson, M.D., and J. Collins Warren, M.D., all of whom are active teachers and well-known writers.

We are agreeably surprised to find Chapter I, an innovation in systematic works on surgery—a careful *résumé* of "surgical bacteriology." Seven colored plates are inserted, illustrating as many kinds of microörganisms, and brief directions are given for staining and recognizing the different varities. It is believed that this precedent will be followed by surgical authors in the future. The immense importance of bacteriology is no longer questioned. It was the recognition of this fact, and the practical lessons in asepsis and antisepsis derived from it that has enabled surgery to outstrip its sister science, medicine, in the last few years. Physicians have awakened to this fact, and we now find many strictly medical diseases treated "antiseptically" with much greater success than had before been reached; and we have not yet realized the

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full measure of benefit that will follow the development of this infant branch of medical science.

The process of inflammation is carefully studied, and illustrated by two colored plates and numerous cuts. We are told that "inflammation *does not begin spontaneously*;" a statement which is sustained by the more recent pathological studies. As our knowledge increases the number of "idiopathic affections" gradually diminishes. The authors do not consider the inflammatory process to be a factor in the healing of aseptic wounds. We read: "from the present point of view the processes of inflammation, and repair are regarded as distinct from one another." The healing of wounds is said to take place either by first or second intention. The regeneration of tissues is described.

It is still taught by some writers that tetanus is a disease of the nervous system. The etiology of this affection has been exhaustively worked out, however, and its bacterial nature demonstrated. Tetanus is here described as "an infective disease." . . . . "The central nervous system is the region chiefly affected by the bacterial poison, which is the cause of the disease." . . . "Several ptomaïnes have been extracted from the cultures of this bacillus, such as tetanine and tetano-toxine, and it is probable that most of the symptoms of irritation of the nervous system are due to the presence of these substances, as but few bacilli are found there." Although idiopathic tetanus is mentioned, it is further stated that "it is probable, however, that all cases of tetanus are traumatic, but that the wound is so slight in many cases as to escape notice." The pronounced nervous symptoms of this disease have been heretofore misinterpreted. The recognition of its microbic origin is particularly useful in the question of prophylaxis. The recent report by Schwarz and others of cases believed to have been cured by injections of the tetanus antitoxin is of the utmost importance. The chapter on wounds and their treatment is very complete. The subject of actinomycosis is also included, and an excellent cut accompanies the article.

More than fifty pages are devoted to a consideration of syphilis. The microbic nature of the disease is advocated, although conclusive evidence is still wanting. Extra-genital chancres receive considerable attention, and the diagnosis of the Hunterian sore from other lesions is simplified by carefully prepared tables, pointing out the characteristics of each affection. This method of differential diagnosis is by no means new, but the tables before us are more exhaustive than we have yet seen. Owing to the difficulty in diagnosing atypical venereal sores, and these are of frequent occurrence, it is advised not to begin antisyphilitic treatment until general glandular enlargements demonstrate the undoubted specific nature of the trouble. When a chancre is seen very soon after its appearance, the authors permit of excision or cauterization, but inasmuch as very few sores come under observation within the first week, this method is rarely applicable. Immediately that a positive diagnosis can be made, active mercurial treatment is to be instituted. The secondary and tertiary lesions receive their full share of attention.

Probably no better exposition of the subject of hereditary syphilis is to be found than here. The matter is all so valuable that we hesitate to quote in the brief manner which want of space demands. We abstract a few thoughts, however: "We may conclude, then, that the husband may infect his wife: (1) In the usual manner or by direct contagion; (2) Through the medium of the child, or at any rate by the production of conception." Consent may be given to marry, after a period of not less than four years, if the person has had thorough specific treatment, unless the case has been unusually severe or malignant. Syphilis may be inherited from either parent or from both. The nearer conception follows infection, the greater the probability of transmitting the disease. "It is highly probable that in all cases where a child becomes

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syphilitic through paternal influence, the mother is also the subject of syphilis, which may, however, assume a latent form, the only evidence of its presence in a few cases being the protection which it affords against contagion through the medium of the child." . . . "The primary stage is never found in true herditary syphilis." . . . "Mucous patches in the infant are among the most important of the early syphilitic lesions, as they are almost constantly present, and *thus constitute by far the most frequent vehicle for conveying the disease from the child to its nurse or to others with whom it may come in contact.* No child that has even been suspected of having a taint of hereditary syphilis should be permitted to nurse at the breast of any one but the mother, or to share its cup or nursing-bottle with other children, or to receive the caresses of relatives and friends." The various lesions that are found and the different organs that are affected receive careful attention, as do also the subjects of diagnosis, prognosis and treatment.

The section on tumors is concise, but the subject is fully covered. The surgery of the vascular system occupies forty pages. Both diseases and injuries are treated of. Inflammatory bone affections are said to be usually of tubercular origin. The subject of fractures is thoroughly presented, and many cuts illustrate the text. Chapter V, of the second part of the book, is devoted to orthopedic surgery. Diagrams showing the distribution of the various superficial nerves are an important addition to the section on the surgery of the nerves. Nerve suture, nerve-grafting, nerve-stretching, neurotomy and neurectomy are described, then follows the operations on the special nerves.

Numerous illustrations add not a little to the very complete chapter on dislocations. Kocher's method of reducing shoulder dislocations is detailed here; three of the cuts accompany this description.

More than sixty pages are devoted to diseases and injuries of the head. Besides treating of the diseases of the head, this chapter faithfully reflects the latest views on the surgery of this region. Probably no better presentation of the subject of cerebral surgery can be found than here. The different aspects of the skull and brain are shown by numerous cuts, and recognized methods of determining the motor areas of the brain are explained and illustrated. Spinal surgery receives like careful consideration.

In the chapter on the surgery of the respiratory organs we notice lung surgery. This is a new subject and has not heretofore been incorporated in surgical text-books.

In the 112 pages devoted to diseases and injuries of the abdomen, among a vast store of other information, the newer operations on the stomach and intestines are fully described. The more approved operations for the radical cure of hernia are given.

Again, we find the chapter on the surgery of the genito-urinary tract a model of completeness. Affections of the kidney and ureter are here treated. The word gonorrhea is shown to be inappropriate to designate the condition of specific urethritis. The gonococcus is believed to be the etiological factor in this affection. Two forms of urethritis are described, *simple*, due to infection from pyogenic microbes alone, and *specific* when gonococci are also present. The numerous complications and sequelæ of gonorrhea are fully described, and gonorrhea in women receives attention.

We are prepared for the chapter on surgery of the female generative organs by a brief review of "anatomical memoranda." The different operations are described, and the indications for their performance given. The surgery of the eye and ear embraces all the recognized operations on these organs. Certainly the general surgeon need not look beyond these chapters for information on these subjects.

In the twenty pages devoted to operative surgery we find discussed the

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multitude of points which arise more or less constantly in all operations: the preparation of the patient, asepsis and antisepsis, ligatures, sutures, etc.

To illustrate the section on ligation of arteries a number of colored plates are inserted, which show the anatomical relations of all the arteries that are usually tied.

Operations on bones and joints and amputations occupy succeeding chapters. Minor surgery closes the volume. In this chapter is included surgical dressings, bandages, plaster-of-Paris and silicate dressings, counter-irritants, local and general bloodletting, artificial respiration, transfusion, hypodermic injections, vaccinations, etc. The index occupies thirty-two pages, and seems to meet all requirements for reference.

It is manifestly impossible in a work of this size to do more than comment on a few subjects, otherwise it would be highly unjust to particularize. It has not been the pleasure of the reviewer to examine a book that is so thoroughly satisfying. The editors determined to produce a work that should reflect the present advanced position of surgery. To say that they have succeeded, but feebly expresses the truth.

The plan of preparing the book deserves mention. Each contributor, although an authority on his subject, submitted his proof to each collaborator for criticism and revision. The work therefore embodies the combined knowledge of the thirteen teachers whose names have already been given. It might justly be considered the result of a general surgical consultation.

The book cannot fail to be adopted as the leading text-book on its subject, and it is recommended to surgeons and students as representing better than any other book, surgery as it is practised in this country to-day.

The publisher deserves special commendation for the general "get-up" of the book. The typography is unexcelled, and the paper of fine quality. Besides a very liberal number of wood-cuts, there are many half-tones and colored plates. A large number of these are original.

SURGICAL DISEASES OF THE OVARIES AND FALLOPIAN TUBES, INCLUDING TUBAL PREGNANCY. By J. BLAND SUTTON, F.R.C.S. Philadelphia: Lea Bros. & Co., 1891.

This refreshing little book, containing 500 pages, is a careful review of our present knowledge of tubal and ovarian diseases. The personal investigations by the author of many of the obscure pathological conditions and physiological functions concerned add greatly to its value. The pathology of tubal pregnancy has been cleared of many erroneous views, the result of false assertions by inexperienced operators, or by surgeons who are not particular in their observations. In considering the subject of menstruation the author has recourse to comparative anatomy, his conclusions being drawn from the observations of the function in Macaque monkeys and baboons and in the human uteri, tubes and ovaries removed during the menstrual flow.

The typography of the book is excellent, the illustrations are abundant, clear and mostly original. We recommend the work as an excellent presentation of this group of diseases, and a valuable addition to gynecological literature.

THE EXTERIOR OF THE HORSE. By ARMAND GOUBAUX and GUSTAVE BARRIER. Translated and edited by S. J. J. Harger, V.M.D. Philadelphia: J. B. Lippincott Company, 1892.

It has been a necessity for English-speaking teachers, practitioners and students of veterinary medicine to look to foreign writers for instruction on points connected with their profession. French and German scientists have paid great attention in late years to the literature of veterinary science. This has undoubt-

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edly been due in some degree at least to the great importance of the horse in the military manœuvres of these two military governments. In consequence, these two nations are far in advance of the rest of the world in this branch of medicine.

It is to supply a portion of this deficiency that Dr. Harger has translated this most excellent French text-book. It is an especially valuable book, not only for the practitioner and the student, but also for the horseman and the breeder. The only criticism which could be made is that, for the ordinary reader, it is a little too scientific, but for the physician it is a book which is most invaluable. Every physician should know something about the horse, both in health and disease. By reading this book carefully, and keeping it on hand for reference, he can acquire a liberal education in veterinary medicine. It should be in the library of every wide-awake practitioner.

DISEASES OF THE NERVOUS SYSTEM. By J. A. ORMEROD, M.D., Oxon. F.R.C.P., Lond. 8vo., p. 337. Philadelphia: P. Blakiston, Son & Co. 1892.

The increasing interest in nervous diseases is shown by the number of works on the subject which have been written in the past few years. One of the most recent is the little volume before us, and it is likely to prove useful to many. It is intended for beginners in the study of diseases of the nervous system, and the author modestly states that he designs it only as an introduction to the study of these affections and as an "outline map of territory to be acquired."

Such a book as this has been needed for some time. The many excellent and thorough treatises which we have had are so elaborate and extensive that it almost frightens the student and deters him from undertaking such a voluminous subject.

Dr. Ormerod is well known as the author of many valuable communications relating to nervous diseases and is well fitted for the task he has undertaken.

This book, as before stated, is designed for beginners, and, with that view, a large portion of it is devoted to the preliminary considerations of the subject. The introductory chapters on the anatomy and physiology of the nervous system are the largest part of the volume, comprising 195 of the 337 pages. These chapters are, in our opinion, the most valuable in the book, for they give a lucid and sufficiently thorough study of the subject. Beginning with the anatomy of the spinal cord and brain, there follows a chapter on the morbid anatomy of the nervous system. Then comes an excellent dissertation on some general symptoms belonging to nervous diseases and the proper methods of investigation. Another chapter is devoted to the study of symptoms belonging to the special senses, and a large portion of this, naturally, is taken up with the eye. The various phenomena connected with the ocular disturbances, such as paralysis of the external muscles, hemianopia, conjugiate deviation of the eyes, etc., have been a difficult study for the student, but here it is rendered easy of comprehension.

The consideration of the different diseases is almost too brief to be of value except as presenting the principal points of each disorder, and will not be sufficient for one who wishes to read up a case or to study any special disease.

The classification of neuritis and lead and diphtheritic paralyses under the head of organic spinal diseases is not in accordance with the pathology of these diseases, and general paralysis, which is also included in the same section, is more a disease of the cerebral centre than of the cord. We also take exception to Thomsen's disease being classed among the muscular atrophies.

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The author has omitted some affections which are usually treated of in works on nervous diseases. For instance, there is no mention of Morvan's disease, Raynaud's disease, tetanus or Diver's paralysis.

The book is well printed and is freely illustrated. We can cordially recommend it.

CONTRIBUTIONS OF PHYSICIANS TO ENGLISH AND AMERICAN LITERATURE. By ROBERT C. KENNER, M.D. THE PHYSICIAN'S LEISURE LIBRARY SERIES. Detroit: George S. Davis, 1892.

The author of this little work disarms criticism by stating in his preface that it is impossible in a volume of the small size of this series to give more than an outline of the subject. As he states, anything like a complete list would require several large volumes. The author gives us only the faintest glimpse of this subject; for example, the extent of his quotations can be seen when it is stated that only two American physicians are found in his selections, Dr. Oliver Wendell Holmes and Dr. John W. Draper. It seems inexcusable that he should omit such well-known writers as Dr. S. Weir Mitchell and Dr. William A. Hammond. The sketches are confined to cursory biographical notices and almost entirely to selections from poetry. As these quotations are found largely in Chambers' and in Cleveland's works on English Literature, it is probable that the entire work of preparing the volume could have been done in one or two evenings. We would advise Dr. Kenner to take his title again and prepare a book which would be larger and more comprehensive. As it stands it is a very incomplete and unsatisfactory book.

THE INTERNATIONAL MEDICAL ANNUAL AND PRACTITIONER'S INDEX FOR 1892. Edited by P. W. WILLIAMS, M.D. 644 octavo pages. Illustrated. New York: E. B. Treat.

This volume is one of merit, and the reader can find in its pages a very complete review of the medical literature of the year. Such a volume must be invaluable to the "busy practitioner" who has time for little else than riding in his buggy and visiting patients. It will be invaluable to the writer, for the references with each subject are full and may be used by one looking up a special subject. Not least among its good points is the alphabetical arrangement of the subjects. This makes it the simplest matter to find any given subject. Part I contains a complete list of new remedies and new uses to which old remedies are constantly being put. One can obtain here a very good idea of drugs to be used or avoided. Part II, which comprises the bulk of the book, deals with the latest treatment of all the diseases. One reading these chapters can have a very good idea of the therapeutics of the day. Part III deals with bacteriology, sanitary science, medical photography, improvements in pharmacy and new inventions.

In short, the book is a complete *résumé* of the medical literature of the period it covers. While the reviewer believes this book deserves the rather unstinted praise he has given it, he wants to enter a word of protest in regard to the "Suggestions to Reviewer" which accompany the volume. The publishers have printed and sent to the publishers of this magazine (and presumably to all to whom the volume has been sent for review) a most laudatory *complete review* of the book. In this instance it could do no harm to print in our columns the "suggestions," for the volume is worthy of praise; but undoubtedly many journals have printed the "suggestions" without turning a leaf of the book. The result would have been the same whatever the value of the book to be reviewed, and the presentation of such a slip is certainly an invitation to print the publisher's opinion of the volume, which, for obvious reasons, is not an unbiased one.

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TREATISE ON GYNECOLOGY, MEDICAL AND SURGICAL: By S. POZZI, M.D. Translated from the French Edition under the supervision of and with additions by BROOKS H. WELLS, M.D. New York: William Wood & Co., 1891.

We have received Volume I of this excellent work, complete in two volumes, which represents the experience of the author through many years' hospital service at Lourcine and as a teacher at the Faculté de Médicine. In its preparation the methods in vogue in other nations have been carefully studied and appreciated, making the work a representation of the present condition of gynecology in all countries. The anatomical description of the female genital organs has been quite properly omitted, while the pathology of the conditions under discussion has been clearly and thoroughly stated. The work is rendered more acceptable by the added notes of the American editor and the substitution of new illustrations for the cuts of certain specula, complicated examination tables and pessaries. In his preface the author has claimed for French origin nearly everything of importance in the gynecological art. This is, at least, bad taste and might perhaps well have been omitted.

Volume I contains 581 pages. The first four chapters are devoted to antisepsis; local and general anæsthesia; the means for the closure of wounds and the control of hemorrhage; and the methods of conducting gynecological examinations. Metritis is next considered, the morbid anatomy of which is beautifully illustrated. Concerning fibroma of the uterus the operative treatment is described in detail, the author favoring the extraperitoneal treatment of the pedicle, yet stating that each method has its peculiar field. In the treatment of carcinoma of the uterus, vaginal extirpation is advocated in every case in which there is no contraindication. The remaining chapters of the volume are devoted to uterine displacements, deformities of the cervix and disorders of menstruation.

DICTIONARY OF TREATMENT. By WILLIAM WHITLA. M.D. Philadelphia: Lea Brothers & Co. 1892.

This volume is not a mere compilation of other men's views. While it is a full and comprehensive review of other opinions on all subjects where views differ, each article begins with the personal views of the author. The manner in which the statements are made, allows no doubt to arise in the reader's mind as to the originality of the author, nor as to his convictions. One excellent feature of the book is the manner in which a diagnosis is insisted upon before any treatment is advised. The reviewer expected to find in the book treatment of so called medical diseases, but no disease, except the rarer forms of nervous diseases, for which, indeed, there is practically no treatment, seems to have escaped the author's notice. Among the suggestions which are evidently not in accordance with the latest discoveries, it is odd to notice the advice to use the spray when it is desired to be assured of an antiseptic operation. As surgeons well know, the spray has long since been discarded by all who do practical work in surgery, even by Lister himself. The advice on page 12, to apply a poultice to a beginning abscess, even after pus has been found, is certainly a mistake, as any one may prove for himself, by making an early incision and treating the wound antiseptically. The same idea of poulticing is suggested whenever superficial suppuration is treated. This is a mistake. It is somewhat *bizarre* to recommend a proprietary preparation in a medical work. These errors are but trivial compared with the excellency of the work in general. It is refreshing and re-assuring, in this age of skepticism, to read the opinions of one

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who has had a large experience, and to be assured, in no unmistakable terms, that medical treatment is of value. Not the least valuable feature of the work is the alphabetical arrangement of the diseases, thus facilitating reference to any given malady. The work is of especial value to those who, for any reason, are pressed for time, and have no opportunity to consult the large works of reference.

SURGICAL ANATOMY FOR STUDENTS. By A. MARMADUKE SHIELD, M.B. (Cantab), F.R.C.S. New York: D. Appleton & Co. 1891.

This cleverly written little book is the substance of a series of demonstrations, delivered by the author, and is intended to be used with the living model. There are no illustrations, as the study from these alone is answerable for many rejections at the final examination.

Where possible various operations are described the lines of incision, surgical landmarks, etc. The various cranial measurements are clearly and concisely given, as well as the relation of the fissures of the brain to the skull.

The surgical anatomy of the neck is thoroughly described, with special reference to the various operations performed in this region.

A considerable portion of the book is devoted to the surgical anatomy of the upper extremity, and the relations of the structures about the wrist are largely dwelt upon. The lower extremity also receives due consideration, and the various operations for talipes are minutely described.

An entire chapter is devoted to the consideration of inguinal and femoral hernia, including a thorough description of the anatomy of the groin.

The eye and the ear also receive mention, and the book closes with a general consideration of the spine and spinal cord.

We consider this book, as it is presented, a great credit to the author, and that it ought to prove especially valuable to students about to pass their final examination.

PRÉCES DE MANUAL OPÉRATOIRE. By L. H. FARABEUF, Professor of the Faculty of Medicine of Paris, etc. Third edition, entirely revised. Paris: G. Masson.

This work considers ligatures of arteries, amputations and resections, to which is added a brief appendix.

Ligatures of arteries comprise the first 108 pages of the book. The ligature is described in the first chapter, the course of the vessels carefully given, and the various steps in the operation minutely detailed. The necessity of educating the touch is well presented. The author says: "In the dissecting-room the student has trained his eye; but the young operator must not forget to train his left index-finger, even more than his eye, if he would succeed in operations on the living."

Ligation of the individual arteries receives careful attention. To illustrate this part of the test, sixty-four cuts are employed, which clearly represent the anatomy of the various parts of the body.

Amputations occupy 458 pages, considered under the heads of general remarks, the stump, what constitutes a good stump and the conditions that make a bad stump, the constituents of the stump and the vitality of the different parts. The different methods of amputation are classified and described; the instruments necessary are detailed and illustrated. The special amputations, as in the case of ligatures, are made plain by an abundance of cuts.

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To resections are devoted 223 pages, taken up in the same systematic manner as the previous section.

The last 24 pages of the book are taken up with the appendix, comprising a brief description of trephining, the operation of resection of painful nerves of the face, external œsophagotomy, tracheotomy, gastrotomy and lumbar colotomy.

The name of the author is sufficient guarantee of the value of the work. We must add, however, that throughout, the book shows evidence of careful preparation, and the presentation is clear. The beginner will find this volume especially useful, inasmuch as each procedure is so minutely described. The work contains 687 cuts of unusually fine execution, illustrating the anatomy of parts, lines of incision, and the various steps of different operations, adding greatly to the value of the text.

A Manual of Venereal Diseases, Being an Epitome of the Most Approved Treatment. By Everett M. Culver, A.M., M.D., and James R. Hayden, M.D. Philadelphia: Lea Brothers & Co. 1891.

In this little work of 294 pages, the authors have limited themselves to the description of three venereal diseases, syphilis, chancroid and gonorrhea; and have considered these subjects solely from a practical aspect; purposely omitting all statistical matter.

Part I was written by E. M. Culver, and is devoted mainly to the consideration of gonorrhea, its symptoms, complications, sequelæ and treatment.

Chapters I to III are devoted to study of the acute attack of gonorrhea; its bacteriological origin, its diagnosis and treatment.

The author is rather inclined to adopt the expectant form of treatment, rather than run the risk of complications by too early injections.

In Chapter IV matrimony is considered. The author believes that a patient suffering from a gleety discharge should not always be cautioned against marriage; only those cases where there is irritability of the bladder, or where microörganisms are found in the discharge need be thus advised.

Capters V, VI and VII are devoted to the study and treatment of chronic urethritis. For making posterior injections, cocaine is recommended, and as a lubricating substance, glycerin.

Chapters VIII to XV are occupied with the consideration of various forms of stricture. The author states, unless in expert hands, no steel instrument below an eighteen French should be used.

For the examination of stricture, the metallic bougié à boule are to be preferred, because they can be bent and are very easily cleaned. The Gouley tunnelled sound is to be preferred to the Maisonneuve, because of the latter having a screw-joint.

Chapters XVI and XVII are given over to the study of chancroid and its complications. Iodoform is strongly recommended in the treatment of buboes.

Part II, written by J. R. Hayden, is devoted to the consideration of syphilis. The various forms of syphilis are discussed. Syphilitic changes in the various organs also claim attention.

As regards the prognosis in syphilis, the author does not commit himself, but says, as a general rule, a patient, otherwise healthy, may expect very little after trouble, if the treatment be kept up a sufficient length of time. For hypodermic treatment a watery solution of bichloride is to be used.

In the last chapter hereditary syphilis and its treatment are considered.

In conclusion, it may be added, that the clear concise style and care, adopted in the preparation of this little book, leads us to recommend it as a valuable aid, to the young physician, in the management of this class of cases.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.,

A Study of 445 Cases of Diphtheria.

Hoppe-Seyler (*Deutsche Archiv für klinische Medicine*, Vol. XLIX, Part VI) has observed the above number of cases in two years.

Mortality.—Of 117 cases 51.9 per cent. died. Of 278 cases 41.8 per cent. died. More of the cases occured in July and September than during any other months.

Sex.—Fifty-four per cent. of the cases were males, fourty-six per cent. were females; being a less percentage of males than is usual.

Age.—During the first year but six cases occurred. During the second year twenty-two cases. During the third year and following the mortality increased. The younger the child the greater the mortality; but in the tenth year of this series the mortality was double what it was the previous year. In the gangrenous cases no patient under twelve years recovered.

Constitution.—From a study of the cases it is evident that the liability to diphtheria is independent of the constitution.

The Infection.—One hundred and forty-nine of the cases were infected from cases previously in the house; eleven cases were infected at school. One hundred and ten of the cases could give no history of the infection.

Initial Symptoms.—Most cases began with a pain upon swallowing, less frequently with hoarseness or cough; sometimes, especially in young children, the child appeared simply unwell.

Temperature.—In adults it was variable; in the beginning it varied from 98.5 to 104. In adults the lower the beginning and maximum temperature the more favorable the case. Most of the children began with normal or slightly raised temperature. The greatest mortality was with collapse with subnormal temperature. When there was high temperature in children, it was usually accompanied by some severe complications.

Seat of Exudation.—The tonsils were affected in 93 per cent.; the palate, in 43 per cent.; pharynx, in 32 per cent.; nose, in 16 per cent., and larnyx, in 49 per cent.

Complications.—The sub-maxillary glands were swollen in 75 per cent. The swelling was especially severe in gangrenous diphtheria. In six of the cases abscess of the cervical glands occured. Frequently in children diseases of the lung, mostly confined to the bronchi, occured. Frequently, as a result, purulent bronchitis occurred, or sometimes broncho-pneumonia. The pleura was but seldom affected. Diseases of the heart played a prominent role in these cases, being present in 88 per cent. of the deaths; whatever the cause of death. Usually there was cloudy swelling. In some cases of fatty degeneration there was marked paleness of the myocardium. Fifty-one per cent. of all the cases were attacked with marked weakness of the heart, and of these 76 per cent. died. In those which recovered there was long continued palpitation and pain in the region of the heart. The heart lesion began variously in from two to twenty days. Bleeding of the nose was frequent; also bleeding of the pharynx; and in three cases there were hemorrages under the skin. The kidneys were

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diseased in 52 per cent. of all the cases; 17 per cent. of the adults and 61 per cent. of the children. This was noted by albuminuria. In the beginning there were usually but few morphological elements, as the albuminuria was more severe, casts and red blood corpuscles appeared. Paralysis occured in 15 per cent. of the cases. Paralysis of the palate and pharnyx occured most frequently. Infection of the ear was common. The vagina was affected once. An erythema occured in seven cases; it quickly disappeared without any rise of temperature.

Treatment.—The throat was sprayed either with a sublimate solution, sometimes 1–100, other times 1–1000, or with 10 per cent. solution of chloral. The nose was sprayed with salt water, or 1 per cent. solution of chloral. In 170 cases turpentine was given in doses of twelve to twenty drops, and only when there was no nephritis. Wine or brandy was always given. Tracheotomy was done 213 times: 178 for simply diphtheria, of which 124 died; 35 times for gangrenous diphtheria, all of which died.

Cachectic Aphthæ; or, Riga's Disease.

Pianese (*Riforma Medica*, 1892, p. 627) describes this disease as follows: It occurs in breast-fed children of healthy parents. It makes its appearance as an ulceration under the tongue, mostly close to the frenum. It is about the size of a flax-seed, and gradually grows to the size of a nickel. It is gray in color and painless. The border is irregular and not sharply marked, and extends somewhat over the sound tissue. It may cause the death of the child; or after a long time recovery may take place. The children waste in flesh, their skin becomes of an earthy hue. Enlargement of the liver and spleen occur. Fever does not occur. Beginning at the age of three or four months it frequently lasts until the twentieth month. It is mostly hereditary, and only seldom do the children of such families live(?). Such children may live if nursed at the breast of a healthy woman. A woman of an infected family may cause the disease in a healthy child. The autopsies show slight hydrocephalus (subarachnoid), fatty degeneration of the liver, and of the cortical substance of the kidney. The author has discovered characteristic bacilli in the organs of the child and the milk of the mother.

The "Taubenzecke" as a Human Parasite.

Alt (*Münchener medicinische Wochenschrift*, July 30, 1892), describes this animal as an ugly shield-shaped parasite, seven millimetres long and five millimetres broad. It is of dirty gray color, with eight legs. Before feeding the animal is almost flat; after feeding it becomes round. (For the minute description the reader is referred to the original article.) The author refers to the very sparse literature on the subject, and details the following case: The patient, a healthy man, had during the past four years five attacks of exactly the same character. During the night he was awakened with a stinging sensation in the wrist. Almost immediately a rose-colored swelling appeared at the site of the pain; in half an hour the whole body, and especially the head, was greatly swollen. The features were entirely obliterated. Palpitation of the heart and dulness of the intellect appeared, lasting for one hour, until a profuse sweat occurred, after which he became better. The swelling lasted from ten to fifteen hours. On examination the swelling was found to be a severe edema. The same animal was found to have bitten him in every attack. This insect was sent to a entomologist, and recognized as a specimen of *argas reflez*. The author allowed himself and two assistants to be bitten by one of the insects, the bite not being followed by any general symptoms and but slight local signs. The patient was found to be somewhat subject to urticaria. Two patients subject to urticaria allowed themselves to be bitten. In one the result was negative; in the other there was a slight general erythema. A number of the animals were found and the nature of the poison examined by Erdmann, and found to belong probably to the toxalbumins. The author insists on the necessity of clearing any

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house of the parasites where they are known to exist. If a bite has been received, the wound should be washed with alcohol to precipitate the poison. If general symptoms have appeared the case should be treated with bromide of potassium, opium, etc.

A Case of Tetanus Treated with Antitoxin.

Finotti (*Wiener klinische Wochenschrift*, No. 30, 1892), reports the following case: A man received a compound dislocation of the distal end of the ulna. On the fifteenth day after the injury, notwithstanding the wound had been dressed antiseptically, the patient developed the first signs of tetanus. The exudation from the wound was of the nature of serous pus. Attempts to cultivate the tetanus bacillus from this pus failed, and inoculation of guinea pigs with the exudation and with the urine of the patient failed to cause symptoms of tetanus in the animals. The first day that tetanus symptoms appeared the hypodermic administration of antitoxin was begun. The patient had a very severe attack of tetanus with all the typical symptoms. These disappeared, however, on the twelfth day of the disease. No medication was used except the hypodermic injection of antitoxin, and seventy-five grains of this were used in twenty-three injections.

Polymorphism of Pharyngeal Diphtheria.

Szegö (*Jahrbuch für Kinderheilkunde*, Vol XXXIV, Part II and III), calls attention to the fact that the demonstration of Loeffler's bacillus is impracticable in ordinary practice, and the diagnosis of diphtheria must, therefore, depend in the great majority of cases upon some other sign of that disease. He details the cases which occurred in an epidemic in a girls' home, which showed the great diversity of the local signs of true diphtheria. Thirty-five cases were observed. Of these, eleven cases had a true membranous deposit, which is usually recognized as diphtheria when they come under observation. Fourteen cases had a simple follicular tonsilitis when they came under observations, and developed a membrane during the attack. Ten cases had signs of only follicular tonsilitis.

Treatment of Incarcerated Hernia with Ether.

Etlinger (*Correspondenz-Blatt*, July 15, 1892), reports three cases of strangulated hernia, all of which had as symptoms pain, vomiting and an irreducible tumor. An operation was considered necessary in all; but before that was done the cases were treated as follows with complete success: The hips were raised, the thighs bent, the scrotum lifted and all the parts concerned were treated by having two teaspoonfuls of ether poured upon the tumor at intervals of ten minutes. The penis, anus and scrotum were covered with olive oil in order that the parts might not be irritated with the ether. After about five hours treatment the tumor became painless and soft, and taxis was successful in reducing the tumor.

Cure of Rabies in Animals.

Tizzoni and Centanni (*Deutsche medicinische Wochenschrift*, No. 27, 1892), have made some experiments upon dogs, in which they claim to have cured rabies which they caused by inoculating the animals. The substance used was serum from rabbits, which had previously been made immune by vaccination. Five dogs were inoculated by virus; after much loss of weight, rise of temperature and paresis of the animal were present, they were injected with the blood serum. Entire recovery of all the animals took place. They believe that the blood serum of animals, protected by vaccination, is not only useful when the poison of rabies is confined to the place of infection, but also when it is more or less widely distributed, and when the special symptoms of the disease are present.

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Ochronosis.

Hansemann (*Berliner klinische Wochenschrift*, No. 27, 1892), details a case similar to one described by Virchow in 1866, and an analogous one by Bostroem one year ago. The patient died of Bright's disease. Before death the urine was of dark to black color, and contained albumin and casts. At the postmortem the especially noteworthy lesions were the pigmentation of the cartilages. The cartilages of the ribs were blackened through and through as though colored with ink, as were also the intervertebral cartilages, the cartilages of the symphysis and of the sterno-clavicular joint. The cartilages of the knee-joint and the semilunar cartilages were somewhat lighter grayish, as were the cartilages of the larynx. The tracheal cartilages showed no discoloration when fresh, but were slightly darkened in the centre after standing some hours. The tendons showed dark stripes on section. The internal surface of the aorta was dark gray on section. A few black spots were found in the mitral and aortic valves and in both kidneys. The lymphatic glands, the spleen and liver, as well as the fluids of the joints were entirely *uncolored*. Microscopic examination showed a diffuse and a granular pigmentation. The diffuse was found in the hyaline and the reticular cartilages, as well as in the tendons. The granular in the other parts, careful chemical examination of the darkened urine, as well as the pigmented parts, was entirely negative. In order to decide whether the two sorts of pigment were identical, the author injected some of the black urine into the abdomen of a dog. When the dog was killed the protoplasm of the reticular cells was found colored, as were also some leucocytes. He believes that the diffuse and granular pigment are identical.

The Centrifugal Machine in Urine Examination.

Thor-Stenbeck (*Zeitschrift für klinische Medicin*, Vol. XX, 1892,) after calling attention to the fallacies and difficulties of the ordinary mode of urine examination by means of allowing a sediment to fall by gravity, thus describes a centrifugal apparatus suggested by himself: A handle is fitted to a large cogwheel which is geared to a small cogwheel, the latter is fastened to the axle of a large flat wheel which is fixed in a vertical position to an upright arm. A small upright rod with the lower end fitted into a plain wheel is so arranged that it will be rapidly turned by friction against the large wheel. An arm is fixed at right angle to this rod. The tubes containing the urine are fitted to the ends of this cross-piece. They are so arranged that when the machine is at rest they hang in a vertical position; as the arm revolves they are gradually thrown into a horizontal position. Each tube contains twelve ccm. of urine. One revolution of the large cogwheel causes about forty revolutions of the tubes. The tubes have a little reservoir at the bottom which prevents the sediment mixing again with the urine. He claims that the precipitating force thus obtained is fifteen hundred (1,500) times greater than gravity. The advantages claimed for this method are, briefly, that fresh urine can be examined microscopically in a few minutes, where by the old method it takes several hours for a sediment to form; that the casts and other elements desirable to be observed are not destroyed or obscured by bacteria which grows during the time the sediment is forming by the old method; that frequently he was able to demonstrate tube casts with the greatest ease in urine in which it seemed impossible to find them by the old method. It was especially useful in the demonstration of tubercle bacilli in urine in which it was previously impossible to demonstrate them. By means of this apparatus he believes he has demonstrated a bacillus which is peculiar to the *acid* urine of cystitis. He has frequently demonstrated the presence of tube casts in urine which contained no albumin ; they were mostly hyaline.

The Treatment of Angina Pectoris.

The *Centralblatt für die gesammte Therapie* quotes Kernig as describing two cases of angina pectoris which died in an attack and came to section. In both cases there was a spot of softening, either thrombotic or embolic, with beginning demarcation in the heart muscle. The author has noticed signs of pericarditis just after the attack, and thinks

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these spots of softening are probably the cause. He believes the proper treatment is to put the patient to bed and keep him there until the softened spot has time to be repaired. He believes absolute rest, during an attack, to be a good means of warding off future attacks.

TREATMENT OF EPILEPSY BY HYPODERMIC INJECTIONS OF HEALTHY NERVE-TISSUE.

BABES (*Deutsche medicinische Wochenschrift*, July 28, 1892) had noticed that persons who had been treated by Pasteur's method for rabies were frequently cured of neurasthenia and kindred disorders. He used for his hypodermic injections the aseptic brain and spinal cord of rabbits and sheep, prepared with bouillon. He reports twelve cases of neurasthenia, treated by this method, all of which were cured. He also reports six cases of epilepsy, in all of which the attacks either became less or entirely disappeared. None of these cases, however, were under treatment more than two months.

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THE THERAPEUTICS OF SCOLIOSIS.

In the *Zeitschrift für orthopädische Chirurgie*, 1892, Band I, LORENZ describes his method of treating lateral curvature of the spine. The patient is suspended by the head and hands in the wooden frame of Beely, the hips being kept fixed by an iron clamp fixed to one of the side-pieces of the frame. By means of broad elastic bands, variously applied and winding partially around the body, an effort is made to reduce the deformity as much as possible. While in the corrected position a plaster bandage is to be applied, to be afterward removed and used as a mould to make a cast on which a wooden corset to suit the case is to be made. The method of using the elastic bandage while the patient is lying down, is also explained and illustrated. In hot weather, when corsets of any kind are undesirable, an elastic band, which is applied as follows, may be worn: The convexity of the curvature being to the right, the bandage is brought around the left shoulder from above downward, then across the back up over the right shoulder, obliquely downward and backward beneath the right arm and across the back to the left hip, around which it winds to be fastened around the upper portion of the left thigh.

THE SPECIFIC MICROBE OF SOFT CHANCRE.

KREFTING, in the *Archiv für Dermatolgie und Syphilis*, 1892, Heft II, gives the results of his researches for the microbe of chancroidal ulcers or soft chancres. They are based on an investigation of fourteen clinical and nine private cases, the histories of several of which are given. Inoculations were made, being sometimes carried to the seventh or eighth generation. In all cases caused by undoubted chancroidal infection, a bacillus was found. They were 1.50 to 2 μ long and 0.50 to 1 μ broad, short and thick with rounded ends and often a depression in the middle where they showed a lighter stain. They occurred sometimes in groups of five or six or more around the nucleus in the protoplasm and sometimes two together, or a single isolated bacillus in the protoplasm itself. Between the cells they occurred singly. The abundance of the bacilli was proportional to the virulence of the pus. The author sums up as follows:

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(1) Buboes caused by soft chancres are either simple, non-virulent (the most common) or virulent (one patient had both forms).

(2) It is wrong to assume that a non-virulent bubo can, at any time, by itself become virulent (*i. e.*, without a new infection).

(3) The treatment of non-virulent buboes with repeated puncture and compression bandages, causes them quickly to disappear.

Dangers of Intestinal Invagination Subsequent to Operation.

Robinson (*Medical Record*, August 13, 1892), says intestinal surgery is about the most dangerous and disastrous of all surgery. Invagination is liable to follow any operation which has required complete severing of the gut. The author thinks the cause lies in the fact, that in suturing a severed bowel, the ends are invaginated, so that in a few days or weeks this invaginated bowel simply continues to invaginate until it interferes partly or completely with the fecal current. Invagination subsequent to operation is liable to follow in circular enterorrhaphy, in Jobert's operation and in lateral anastomosis by plates. To guard against this subsequent condition a rubber tube, six to eight inches long, may be adapted to the bowel. The tube must not fit too tightly, as it may cause gangrene. The tube should be stitched into the segment of gut when the circular enterorrhaphy is performed. It should project three-quarters up into the proximal gut. The author claims by adopting this measure he has had but one death from invagination subsequent to operation.

The Prognosis of Gunshot Wounds of the Abdomen.

Seliger (*Präger medicinische Wochenschrift*) found, according to his statistics on the subject, that gunshot wounds of the front of the abdomen were four times more frequent than those of the back, and have a mortality of fifty-four per cent. If complicated by injuries of the bones, seventy-eight per cent.

In cases where the pleural cavity was perforated, death always resulted, even if the lung escaped injury.

In the fatal cases death occurred within the first two weeks, and was attributable to hemorrhage, peritonitis or septicemia. It may happen that the bullet perforates the abdominal cavity without injuring the intestine; but usually protrusion of the gut occurs, rendering the prognosis worse.

Gunshot wounds of the omentum may terminate fatally from hemorrhage, but otherwise the prognosis is good. Wounds of the stomach are usually fatal, and the same applies to wounds of the duodenum.

An actual complete cure in cases of gunshot wounds of the small intestines is very rare, while among wounds of the large intestine, those of the descending colon and sigmoid flexure, are seldom fatal; those of the transverse colon give a worse prognosis. Recovery in these cases is rendered tedious by the formation of fistulæ, adhesions and abnormal communications, especially when the rectum is involved.

A marked contrast exists between intra- and extraperitoneal wounds of the bladder; the former being uniformly fatal, while the latter gives a mortality of only fifteen per cent.

Gunshot wounds of the kidney are attended with a death-rate of forty-four per cent.; but even in favorable cases persistent renal fistula, and chronic inflammation of the parenchyma are frequently left behind.

In gunshot wounds of the liver the mortality is 26.8 per cent. The most frequent sequelæ are biliary fistulæ, although abscesses have been noted. Wounds of the spleen are difficult to diagnose the mortality amounting to sixty-five per cent.

Wounds of the substance of the spinal cord in the lumbar region result fatally, but a more favorable prognosis can be given in cases of effusion of blood into the spinal canal. The mortality of wounds of the pelvic bones is also very high; death often occurring at a late period from exhaustion, or amyloid degeneration resulting from protracted suppuration.

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Compression of the Brain and the Province of the Trephine.

Briggs (*Nashville Journal of Medicine and Surgery*, August, 1892), remarks that the term compression of the brain is not scientifically correct, but has been accepted by the profession to express a condition characterized by a group of symptoms which follow injuries, and sometimes diseases of the brain.

It is a great question with many surgeons whether compression compresses. Great pressure is often exerted on the brain structure without any symptoms indicative of compression; while on the other hand, injuries which do not induce compression, often cause the symptoms indicative of that condition.

If pressure be fixed and stationary, the brain will accommodate itself to it, and the symptoms, if any have existed, will pass off.

Injuries, which do not compress the brain, such as contusions, and lacerations may be followed by symptoms of compression.

Compression from depressed fragments of a fractured skull, is considered by Hutchinson to be an "imaginary state," and Briggs also says that he has never seen a case in which there was definite reason to think the depression produced the symptoms. The chief element of danger in depressed fractures is not compression of the brain, but irritation set up by displaced fragments of bone. The author is of the opinion that the use of the trephine should be confined to those cases where there is irritation, produced by spiculæ of bone, which press on the surface of, and often penetrate the membranes.

The Treatment of Congenital Myxedema by Hypodermic Injections of Thyroid Juice and by Grafts of the Thyroid Gland.

Robin (*Lyon Médical*, August 7, 1892), reports the case of a child 7 years of age suffering from congenital myxedema. The family history was good; no hereditary affection of any kind could be traced. Before the birth of the child the mother had a fall upon her back, and, as a consequence, gestation was prolonged to between the tenth and eleventh month. The child at birth was enormous, weighing fourteen pounds.

Its appearance was quite strange, looking as if it had been blown up with wind. The lips were large and hung down, mouth always open, cheeks pale, and temperature subnormal.

The child did not develop mentally or physically until about the fifteenth month. Towards the fifth year the child contracted measles, and eighteen months later whooping cough. During both of these attacks there were dangerous pulmonary complications.

Since these attacks the child has but slightly developed. Its appearance is that of a child three or four years old, and its physiognomy characteristic of myxedema. The neck is large, and by palpation the thyroid gland cannot be demonstrated. In the subclavicular fossæ well-marked pseudo-lipomatous masses were found. The legs and arms were slightly bowed; the skin was thickened; child did not walk without aid; constipation was marked. The urine did not show anything abnormal.

The child had been treated by various remedies since it was fourteen months old, but without special result. Creasote apparently caused the infiltration slightly to decrease, produced some elevation of temperature, but no permanent results.

The author then decided to try hypodermic injections of the juice expressed from a thyroid gland. The mode of preparation, as adopted by the author, is as follows:

A large flask, containing a six per cent. solution of carbolic acid, is taken to an abbatoir. The sheep killed and immediately skinned, the thyroid gland is rapidly removed and placed warm in the flask. The fat and capsule being removed, the gland is cut up in small pieces and allowed to desiccate on a warm clean plate. This being done, a piece of new muslin, very strong, is taken and soaked in boiling water and afterwards dried over the flame of a Bunsen burner. It is then soaked in a solution of carbolic acid and slightly wrung out. The gland is now enveloped in this cloth and placed between the jaws of a shoemaker's pincers and vigorously squeezed. The liquid is then collected in a flammed silver spoon and put in a flask, again sterilized and kept ready for use.

It is absolutely necessary that the gland, before maceration, be cut in fine pieces,

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and that it does not contain cysts. The injections were made every day, the child began to improve rapidly, the infiltration diminished, and finally totally disappeared. The child became active and began to walk. The temperature was no longer subnormal. The injections should be made every day for four months.

In another case, treated by the author, grafts were used. For this method the operation must be done rapidly and be thoroughly antiseptic.

An incision should be made below each breast, the gland or glands rapidly introduced and the wound closed.

What becomes of this transplanted mass, or what influence it exerts, is an open question.

It is claimed by some authors that the thyroid has a thermogenic action from the fact that the temperature in cases of myxedema is always subnormal.

Gunshot Wounds of the Brain.

Ruth (*The Journal of the American Medical Association*, August 20, 1892), says a ball entering the brain may confidently be expected to pass through the cerebral mass in a straight line, unless deflected by bone, the falx cerebri or tentorium. All instruments for examination, under these circumstances, should be straight, and it is even wiser to have them graduated upon the shaft so as to enable the operator to determine the degree of penetration. The use of an aluminium probe is advised, which should be allowed to pass by its own weight. It is claimed by many writers that the brain substance does not offer resistance to the passage of a probe. Ruth, by experimenting, has found that a hemispherically tipped probe, one-fourth of an inch in diameter, requires from one and a half to three ounces in weight to produce penetration. Wyeth states that a gum catheter, presumably one such as is used with a stylet, a few sizes smaller than the missel, is as good a probe as could be procured. Before the probe has passed far the resistance may be so multiplied that it is impossible to determine whether the resistance is at the top or in the lateral walls.

As an aid to accuracy in locating the nearest point on the scalp to the top of the probe, the author has devised the following: A straight bar ten inches long, with two points three and one-half inches projecting in the same line at right angles to the bar, one point being curved and adjustable so that it could be accurately fitted to the skull. With one end projecting by the side of the probe, and the straight bar over the top of the head sighted with the probe, a mark may be made by the side of the opposite point which must pass over the top of the probe; by repeating the sighting over the skull ninety degrees from the former point and again drawing a line as before, the lines must cross each other at right angles, and the point of crossing will mark the position of the top of the probe.

Balls fired into the skull that do not produce penetration of the opposite wall remain where they strike or glance and do not rebound.

In rare cases they repenetrate after striking the opposite bony wall. The distance which a ball will move from its point of impact must depend upon its velocity, angle of incidence, the surface of contact and shape of the skull. Unless the force of impact be great, the dura will not be cut and the ball remain between the dura and the brain.

The bullet forceps of the author are straight, and so arranged that they could be worked through a canula smaller than a twenty-two calibre ball, yet the jaws can be opened to grasp a fifty-five calibre ball.

The author thinks it well to experiment a little on the cadaver before attempting to use these forceps.

The author in conclusion says:

(1) That a ball can be followed in its course through the brain.

(2) Having been followed to its point of impact on the opposite side of the skull, a trephine disc should be removed, drainage be established and the ball removed if possible.

(3) That probe is best which is least liable to penetration and with least lateral friction on its shaft.

(4) That hemispherical front porcelain top and albuminium shaft answer best the above indications.

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(5) That one intending to follow a bullet through the brain should familiarize himself with the resistance the normal brain offers to penetration by the probes he expects to use.

(6) That he should frequently grasp and remove ball and pieces of bone with the forceps of his choice on the cadaver.

The Operative Treatment of Ventral Hernia Resulting from Abdominal Section.

Gilliam (*Medical News*, August 13, 1892), says if the case be one of long standing, with prolapsed viscera and contracted abdomen, the patient will need a preparatory treatment of several weeks duration. The object of this treatment is to restore, in a measure, the lost abdominal capacity, and to strengthen, if possible, the visceral supports. The bowels must be assiduously attended to, massage to improve the muscular tissues, and the patient kept recumbent. At stated intervals, say once or twice a day, the patient is placed in the Trendelenburg position to distend the upper abdomen and to restore the organs to their natural positions. Flatulence, if it exists, should be combatted by proper remedies. The author's operation is as follows: With a curved sound depress the pouch over the median line, carrying the instrument in toward the cavity, and with tenacula approximate the sides, being careful not to use traction, as there must be no tension. The line of contact will be eliptical. This may be be marked out with iodine or ink. Now, with scissors and tenaculum follow this around, laying bare the fascia and working toward the centre, until an inch or more is exposed. This leaves an elliptical island surrounded by an elliptical furrow. It is well to freshen the outer margin of the skin of the island. If the area be not too large, the author is in the habit of denuding the whole. A small rubber drainage tube is slipped over the sound and the parts depressed as before. The tube must be long enough to project at either extremity. A continuous catgut suture is now run along the inner aspect of the denuded strip, and made to include the skin-margin of the central island. A second and a third row are superimposed until the gap is closed, and the parts brought into nice apposition. The sound is now withdrawn, leaving the drainage tube in place. The wound being covered with gauze strips of rubber adhesive plaster, to which tapes have been attached are applied, well down to the sides of the abdomen, and the tapes tied down over the dressing in the median line. The patient is then put to bed and treated as a case of ordinary abdominal section.

Meckel's Diverticulum as a Cause of Intestinal Obstruction.

Allen (*Medical News*, August 13, 1892), describes Meckel's diverticulum to be the remains of the omphalo-mesenteric duct, extending from the lower portion of the ileum through the umbilicus to the yolk. In the cases that the author has examined, its location has been from fifteen inches to three feet above the ileo-cecal valve. Of 3,400 post-mortem records made at St. Bartholomew's Hospital, London, it was found to be present twenty-seven times.

In all of the cases in which a history has been recorded, the part of the gut constricted was the small intestine, and in most of them it was stated that the lower part of the ileum was involved.

The longest time a patient has lived after the appearance of the symptoms of obstruction, was nine days; the shortest time was thirty-six hours. Deaths from Meckel's diverticulum usually occur in youth or early adult life. The diverticulum is four times more frequent in males than females.

The symptoms of obstruction dependent upon the diverticulum are very similar to those of volvulus occurring in the lower part of the ileum. According to Treves, if obstruction be complete, pain is continuous, whereas if the pain be not constant, it is an indication that obstruction is incomplete.

The diagnosis is difficult; but as the obstruction generally involves, the ileum vomiting does not occur so early, nor with such severity as it does when the obstruction is higher up in the small intestine.

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At the beginning of the obstruction, and in a patient with moderately thin abdominal walls, there will be found a local prominence in the region of the cecum; this prominence is rendered imperceptible when the tympanitis becomes general. It is the recorded experience of many that obstruction of the bowelabout the cecum causes distention, first of the central portion of the abdomen.

It is not unfrequently the case that diverticulum may cause repeated attacks of partial obstruction.

The presence of free fluid in the abdominal cavity is also an important diagnostic sign. This, however, rapidly disappears, as the inflammation extends.

In operating for intestinal obstruction, the surgeon should first examine the cecum. The median incision answers all purposes.

If the diverticulum be found, it should be divided between two ligatures, as it is patent, and might discharge fecal matter into the abdominal cavity.

On account of the serious condition of patients suffering from intestinal obstruction, it is probably best to simply divide the constricting band, and not attempt to resect.

The Treatment of Tuberculosis of the Bladder Through a Supra-Pubic Section.

Bell (*Journal of Cutaneous and Genito-Urinary Diseases*, August, 1892), says the favorite sites of tuberculosis of the bladder are the trigome and around the neck. The disease remains a long time confined to the mucous membrane, and only in advanced cases are the deeper tissues invaded. The disease may be primary and confined to the bladder; but is, probably, most frequently secondary to tubercular lesions elsewhere.

In two of the three cases operated upon by the author, ulcers were found about the urethral orifice, while the third, in addition to the ulcer, the entire vesical mucous membrane was studded with tubercles.

The cases were operated upon by the supra-pubic incision; the ulcers were curretted and touched with the Paquelin cautery; the bladder drained for thirty-six hours, and the wound then allowed to close.

In the third case a number of the tubercles were allowed to remain, because from their position they could not be seen.

The advantages of this operation are both immediate and remote. The immediate results in every case reported were the full relief of the painful and frequent attempts at micturition, the arrest of hemorrhage, and in a short time cessation of pus discharges, except in those cases where the pus comes from other sources. The remote effects have been, so far as is known, that the three patients have almost entirely recovered. This operation is much to be preferred to the perineal incision, because the parts can be distinctly seen, and the urine escaping through this opening leaves the denuded membrane, near the urethra, free from irritation.

The Treatment of Tumor Albus in Children by Conservative Operations.

In the *Rèvue Mensuelle des Maladies de L'Enfance*, for August, 1892, Phocas advocates partial operations, in the treatment of tumor-albus in children, in preference to classical resections. The latter, while yielding such brilliant results in adults, are almost always inapplicable in the case of children. No operation should be done until a long trial has been given to compression and rest. Any operation which sacrifices the epiphyseal cartileges in children below the age of ten, and particularly below the age of six years, is to be condemned. Volkmann, in 1885, proposed arthrectomy by first dividing the patella transversely, and so exposing the joint. König advised a lateral incision, while Ollier used a single longitudinal one. The incision depends on the character of the lesions present, in the author's cases a transverse incision was used; the object being to remove from the joint all affected parts. It is necessary to remove all the synovial tissue. If any ligaments are involved, they also should be removed. Bony lesions, if present, should be removed with

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the knife, gouge or curette. Deep sutures were placed in the patellar tendon and a small drainage tube at each end of the incision. The Esmarch bandage was only removed when the dressing was completed. The operation of arthrectomy is only applicable to those cases in which the bony lesions are not too far advanced, or when the disease being of long standing, the affected parts are limited in extent. In reference to the results of arthrectomy, out of twenty-three cases collected by Müller from the Göttingen clinic, there were four deaths, one each from chloroform and iodoform, and two from a generalization of the disease. Fifteen were cured without any fistulæ, the others requiring a secondary curetting. In six cases there was complete ankylosis, and in two a certain degree of mobility. Augerer reports sixty-three cases of arthrectomy in children; forty-eight of these were cured by first intention, but of these ten had recurrences. Of sixteen others, with immediate return, three were amputated, three died, and the others were resected and cured. Synovectomy is an operation which it is rarely necessary to practice, while the conservative, yet more extensive operations are usually a necessity. The saw should be replaced with the knife, gouge or curette.

The Operative Treatment of Congenital Dislocation of the Hip.

In the *Centralblatt für Chirurgie*, August 6, 1892, Lorenz describes his operation for the replacement of congenital dislocation of the hip-joint. The first operative procedure recommended for this deformity was that of A. Hoffa. He advised exposing the head of the femur by means of Langenbeck's incision. The joint capsule and all the muscles, inserted into the trochanters major and minor, were to be stripped off, the head of the bone drawn away, the acetabulum deepened, and then the bone replaced in proper position. In a case in which Lorenz attempted this operation, it took one and a half hours, the subsequent course of the wound was bad, and the deformity soon recurred. Believing that it was those muscles which acted in the long axis of the limb which prevented reposition rather than the pelvi-trochanteric ones, he devised and executed in four cases the following procedure: Powerful extension and counter-extension by means of thick woolen strands; subcutaneous myotomy of the adductor muscles, and, through the same opening, the tightened muscles of the tuberosity of the ischium. Extension still being kept up, an incision, six to seven centimeters long, was made from the anterior superior spine of the ilium directly outwards. The wound being drawn apart, the fascia lata, tensor fasc. lat., the anterior edge of the gluteus medius, and the sartorius, were divided transversely. Going deeper between the sartorius and tensor, the tendon of the rectus was divided immediately below the anterior inferior spine. The joint capsule was then freed and opened anteriorly with a cross cut. The extension being abandoned, the limb was flexed, adducted and shoved backward; this allowed access to the joint cavity of the index finger of the left hand, which served as a guide for the sharp curette with which the acetabulum was deepened. This having been accomplished, the head of the femur, by slight extension, can be planted in the acetabulum. The histories of four cases are given.

The first case, that of a rachitic child, aged 5 years, was operated on the left side. The neck of the femur was very short. The second operation was on the opposite hip of the same patient, but here reposition was effected without opening the capsule. The third operation was done on a girl, aged 6 years, and the fourth in one aged 15 years. Owing to a lack of suitable instruments, the operation lasted an hour. The acetabulum was filled with so hard a material as to require a chisel for its removal. After operation the limb is to be placed in an abducted position. The healing of these four cases was satisfactory.

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THERAPEUTICS.

UNDER THE CHARGE OF
HORATIO C. WOOD, M.D., LL.D.
ASSISTED BY
DAVID CERNA, M.D., PH.D.

THE USES OF PHENOCHLOR-PHENOL.

This drug (*Revue Générale de Clinique et de Thérapeutique*, August 3, 1892) when pure is a dense liquid, volatile, with a vapor heavier than air. Its antiseptic powers are four times more powerful than those of phenic acid. It has an agreeable odor resembling that of menthol and thymol. Monochlor-phenol has been advocated, principally by Passerini, as antiseptic in the treatment of pulmonary tuberculosis, chronic bronchitis, pulmonary gangrene and bronchorrhea. The density of the vapor, according to the author, favors the penetration of the remedy into the smallest bronchial ramifications, and thus it absorption is enhanced. The therapeutic effects are shown in the diminution of the expectoration, and that of the purulency, fetidness and quantity of the microbes; at the same time the cough is attenuated, and the fever and the night-sweats are similarly diminished. During the administration of this medicament a severe hygiene and proper alimentation must be carefully attended to, as these by themselves tend to produce amelioration. Monochlorphenol is best administered by inhalation, the daily dose of the drug being from twenty to thirty drops. The value of this remedy as an antiseptic, is undisputed and need not be discussed.

THE TREATMENT OF PHTHISIS BY MENTHOL.

At the meeting of the British Medical Association, held between the 26th and the 29th of July last, at Nottingham, BROOKHOUSE (*Revue Générale de Clinique et de Thérapeutique*, August 3, 1892) called attention to the parasiticidal powers of menthol, a remedy that must be daily applied through the trachea, in doses of four grammes of a twelve per cent. solution made with sterilized oil, in the treatment of pulmonary consumption. Administered in this manner the drug was well borne by patients, and under its use the cough, expectoration, night-sweats, the hectic fever, and even the emaciation were diminished. The observations were made at the Nottingham Hospital. The value of menthol in laryngeal phthisis is well established, and in pulmonary tuberculosis it is worthy of trial by the method indicated, a method that is simple and without mystery, unlike that of the famous tuberculin.

THE CARDIAC TONICS AND THEIR INDICATIONS.

At the same meeting referred to in the preceding paragraph the subject of the heart-tonics was discussed. BROADBENT spoke of rest or moderate exercise, and of eliminative agents. He said that strophanthus seemed to be the typical heart-tonic, since it increases the power of the cardiac systole without modifying the contractility of the blood-vessels. The author, who appears somewhat partial to this medicament, asserts that the failures reported at various times, regarding strophanthus in practical medicine, are due to the impurities of the preparations used. After strophanthus he places digitalis, adding that the former remedy sometimes acts from the first or second dose. He said that digitalis increases the elimination of liquids, while caffeine enhances that of the solids, and hence the utility of prescribing these two agents in combination in order to obtain the same good effect that a large single dose of digitalis would produce. LAUDER BRUNTON answered that digitalis is at the same time a cardiac and a vascular tonic, but that it must not be forgotten that the principles of the drug do not act in the same manner: *Digitaline*, he said, increases both the contractility of the cardiac muscular fibre and that of the coats of the blood-vessels, while *digitoin* produces a contrary effect; thus, when in a cardiopathy there is an excessive

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constriction of the blood-vessels, it is advisable to combine digitalis with vaso-dilator substances as nitrous ether, for example. Alongside of strophanthus Brunton places the oxyspartein which, like it, acts decidedly upon the heart, but not so much upon the vessels themselves. He believes that the best cardiac medicaments after digitalis are strophanthus and nitrous ether. The same author also insisted on the employment of muscular exercise in order to increase the arterial tension, but without putting strain upon the heart. In mitral disease, for instance, the rule is to have absolute rest, but in such cases massage is to be resorted to, a method by which the general nutrition may be increased without producing cardiac muscular exertion. It is, then, useful to associate to massage passive exertise. Lastly, Brunton recommended, in the treatment of mitral disease for example, the administration of blue mass during the night and jalap by day.

The Action of Erysipelas on Malignant Tumors.

It has for some time been observed (*Revue Générale de Clinique et de Thérapeutique*, August 3. 1892) that regression and frequent disappearance of malignant cutaneous tumors occur after an attack of erysipelas. Sprinck has experimented on dogs in regard to the action of the products of the streptococci of erysipelas. Salzer, Huysman, Van der Meulen and Reussin have similarly experimented on man. In both series of experimental work the individuals used were affected with carcinomata. The liquid, prepared by filtering the cultures through a Chamberland filter, is brown and contains a toxalbumin, proteins and other substances. In rabbits an intravenous injection produced death in the course of twenty-four hours, such being preceded by fever, diarrhea and albuminuria. On the contrary, however, small doses gradually administered produced a tolerance for the liquid. Injected into a cancerous dog the liquid caused a slight redness and swelling of the tumors, and on the injections being continued a necrosis, a softening, but never a suppuration of such tumors occurred. In man these local phenomena are less pronounced. There is scarcely any redness of the tumor produced, and on the contrary the pain caused is often quite troublesome. After a few days, in spite of the injections the phenomena cease, and the tumors reacquire their original volume and color. So far, therefore, these experiments have shown no good therapeutic results, and at present they are only interesting from a scientific standpoint.

Therapeutic Value of Salophen.

Fröhlich (*Wiener medizinische Wochenschrift*, No. 28, 1892), concludes his observations with this drug as follows: Salophen is useful in acute articular rheumatism. It is preferable to salicylate of soda or salol, because it is not hygroscopic, is tasteless, and can be used in large doses for a long time without any ill effects, and because it is broken up into its elements; first, in the intestinal canal, and, hence, can have no ill effects upon the stomach. It action in chronic rheumatism is not constant, while it will usually control the pain; it has no effect on the absorption of the exudations about the joints.

In the writer's hands it was not useful, either as an antipyetic or antiseptic.

Strontium Salts.

The *Therapeutische Monatshefte*, July, 1892, has a résumé of the observations upon strontium salts, which gives the following as the best observed facts: While the strontium salts are chemically similar to the barium salts, they differ from them in being non-poisonous. See has used lactate of strontium and bromide of strontium in diseases of the stomach. Thirty-two cases of dyspepsia, with hyperacidity, were very much improved, in some cases a cure was effected. The effect was also good in three cases of gastralgia. Constantin Paul used the lactate in cases of parenchymatous nephritis, with diminution of the albumin, but no marked diuresis. He thinks this salt is especially indicated in cases of parenchymatous nephritis, puerperal nephritis, and, perhaps, in nephritis following scarlet fever.

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He also used bromide of strontium in a case of hystero-epilepsy in doses of ninety grains daily, with excellent results, after the potassium salt had been used without avail. DUJARDIN-BEAUMETZ has also found it of value in Bright's disease. LABORDE has found the lactate useful against tape-worms. Bromide of strontium is used in thirty to sixty grain doses daily in dyspepsia. In epilepsy it is used in the same doses as the sodium salt. Iodide of strontium is used in the same doses as the potassium salt. The nitrate in doses of half an ounce a day. The lactate in two to three drams as a daily dose. They are all given in solution.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D., AND FRANK W. TALLEY, M.D.

TREATMENT OF PUERPERAL TETANUS.

VINAY (*Gazette des Hôpitaux*, 1891, No. 152), states three indications in the treatment of puerperal tetanus: (1) Of the uterine wounds, directed toward the elimination and destruction of the poison; (2) of the blood, the quality of which has been changed by the poison; (3) to relieve the nervous sensibility. Antiseptic treatment of the wounds in the birth canal offers, indeed, so soon as the first symptoms of tetanus present themselves, only slight chances for success. It should not be neglected, however, but undertaken with the greatest caution to prevent new irritation. The attempts to inject blood-serum from animals, in which an immunity against tetanus has been produced, have been, until now, unsuccessful. It seems, however, in proper cases to be indicated in larger doses. From the so much praised medical forms of treatment, that by chloroform inhalation occupies the first rank. It is to be pushed to deep narcosis and kept up for several hours.

Of about the same value is chloral in large doses, fifteen grains hourly (3 to 4 drachms daily), by the mouth or in enemas of 1 drachm continued daily until sleep or muscular relaxation occurs. If chloral cannot be given in this way, it may be replaced by the hypodermic injection of morphia, but with less prospect of success. A combined treatment with chloral and chloroform is of great value. Repeated warm baths, with successive packs, have a quieting action, and through stimulation of the skin, favor the elimination of the poison; they are, however, on account of the danger of new irritation contra-indicated.

The patients require very careful attention, every physical or moral excitement is to be avoided, the most even temperature is to be maintained, the bowels and kidneys are to be regulated, and the diet supporting. Convalescents must be kept in bed a long time to prevent relapse.

FETAL HEAD RETAINED OVER THREE MONTHS IN THE UTERUS.

LOISNEL (*Nouvelles Archives d' Obstétrique et de Gynécologie*, May, 1892), describes the following extraordinary case which came under his observation: In November of last year, Dr. Notta was called to attend a woman who had felt labor pains at term three months before. She was a III-para, her previous labors resulting in spontaneous delivery. The doctor attempted turning, and failing, amputated a leg. On the day following he cut off the other leg. Next day he decapitated and removed the trunk and arms. Antiseptic injections were prescribed, but, through ignorance of the patient, were not given. The woman resumed her work, but was annoyed by the lochia continuing longer than usual. The doctor found a vesico-uterine fistula and a solid body occupying the uterus. He

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extracted a piece of maxilla by the aid of forceps. The patient was then admitted to a hospital. The os was dilated and the fetal skull removed in pieces. There had been up to this time no signs of septicemia. Afterward there was an occasional rise of temperature during recovery. The vesico-uterine fistula closed, but a communication established itself between the rectum and genital tract.

Dr. Hergott had once extracted the placenta from a woman who had been delivered seven months previously. There had been no septic symptoms. In the discussion, Professor Tarnier remarked, that some women resisted septic infection, and others recovered from it. Sloughing of the whole bladder did not always prove fatal. He had seen recovery after diffuse abscesses and suppuration of both eyeballs. Drs. Notta and Loisnel had, in extracting the head piecemeal, done the best possible thing, considering that they had not the choice of many instruments.

Sore Nipples Treated with Ichthyol.

Dr. Oehren (*Therapeutische Monatschrift*), recommends ichthyol in the treatment of sore nipples, according to the following formula:

℞. Ichthyol..... 3i.
Lanoline
Glycerine.....āā 3i¼.
Olive oil..... 3iiss.

The pain disappears after the first application, and the fissures heal quickly. It is easily washed off before nursing, and is perfectly harmless.

Development and Retrograde Change of the Decidua.

Klein (*Zeitschrift für Gynäkologie und Geburtshilfe*, Band 22, Heft II), has drawn from his investigations of specimens from different months of pregnancy, the following conclusions:

At the end of the second month of pregnancy the development of the decidua is perfected. The external or glandular epithelum of the endometrium, by intra- as well as extra- uterine pregnancy becomes cubic, flat, resembling endothelium and degenerated, but remains in single layer. A like change is also noted in the tube, epithelium in tubal pregnancy. This change is readily seen from the middle of the first month of pregnancy to six weeks after labor.

As decidual cells occur in other conditions than pregnancy, as in membranous dysmenorrhea, their presence is not sufficient for a diagnosis of pregnancy. But the appearance at the same time of decidua cells and degenerated cubic or flat glandular epithelial cells in single layer, point with the greatest probability to pregnancy. An absolutely safe microscopical characteristic of the mucosa uteri and tubæ in pregnancy, has not yet been found; it is necessary to find fetal constituent parts, as villi of the chorion.

The epithelium does not degenerate as the result of pressure or of passive stretching, but through the swelling of the cell protoplasm and nucleus, depending upon changed nourishment and activity of the cells. Relative to the derivation of decidua cells, Klein believes it to be from the connective tissue in human beings. He rejects the epithelial origin.

Klein considers two types for the retrograde change in the decidua: (1) Type in normal births; (2) type mostly after abortion in the first months. After normal births the greater part of the decidua pushes itself loose, and from the deepest, partly from the remains of mucous membrane lying between the upper muscle bundels, the regeneration of the mucosa takes place. In these remains of mucous-membrane are connective-tissue repair cells not of decidual character, in part glands with cylinder epithelium. The necrotic tissue is in most part thrown off and not absorbed. This retrograde metamorphosis is ended in four to six weeks.

Toward the close of normal pregnancy the decidua undergoes, in the greatest part

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coagulation-necrosis, and in less degree, fatty degeneration. Pathologically, the fatty change may reach a high grade. This slowly conducted condition is to be regarded as necrobiosis. The egg at the end of pregnancy is to the greatest part clothed with a necrotic mantel, and becomes at last a foreign body, and as such is eliminated from the body. Klein considers it possible, therefore, that in the normal coagulation-necrosis of the decidua, as in pathological coagulation-necrosis, and fatty degeneration of the placenta lies a cause of the beginning of labor.

TWO SYMPHYSIOTOMIES WITH FORTUNATE RESULTS FOR MOTHER AND CHILD.

LEOPOLD (*Centralblatt für Gynäkologie*, No. 30, 1892) reports two cases of delivery by symphysiotomy with good result for mother and child. His first case was that of a dwarf, 135 cm. in height, IV-para, with a generally narrowed, flat, rachitic pelvis, measuring 22, 24, 28, 17½, 8¾, 6¾. The first two pregnancies had terminated in forceps deliveries with dead children. In the third pregnancy abortion was induced, and child still-born. In the present labor the pains began at 7.30 a.m. Membranes had ruptured one and a half hours previous. Head high up and fixed at superior strait. Symphysiotomy was begun at 2.50 p.m. Child born by high forceps operation at 3 p.m. Operation ended after perfect suture of symphysis and abdominal wall at 3.30 p.m. During the extraction there was a stretching apart of the symphysis measuring 7 c.m. Lateral pressure was made upon the mons and ilia during the entire operation. The symphysis was united with three, and the soft parts with four deep and seven superficial stitches. The child, female, measured 49 cm. and weighed 3,565 gm. Diameters of head 9¾ and 8¼ cm. Horizontal circumference, 34 cm. Puerperium normal. Remained in bed for twenty-four days. No disturbance of locomotion or micturition.

The second case was that of a II-para, whose first child had been delivered by perforation. Pelvis measured 22, 25, 30½, 16, 8½, 6¾. The pains began at 6 p.m. Membranes ruptured next morning at one. Head large, hard, immovable, fixed in the right half of the superior strait. Symphysiotomy was begun at 4.05 a.m. Child born with high forceps operation, very easily and rapidly, 4.16 a.m. Operation completed 4.50 a.m. During the extraction the separation of the symphysis measured 6.5 cm. Child measured 51 c.m. and weighed 3,310 gm. Diameter of head 9¾ and 8½ cm. Circumference, 35¼ cm. Puerperium normal. Has no pain in moving legs or interference with micturition.

Leopold states that symphysiotomy should replace perforation of the living child and Cesarean section upon relative indications. He believes that Cesarean section is markedly limited to that domain to which it always has belonged—6 cm. conjugata vera or less by conceptions at term. The operative procedures which are not difficult are as follows: The mother is placed upon a table with buttocks projecting. Two assistants held the legs, slightly separated, with one hand below the knee, while the other presses the trochanters together. An incision is made through the skin from the upper border of the symphysis to 1 cm. above the clitoris. The soft parts are separated down to the joint; the insertion of the recti muscles is transversely divided only so far that the left index finger may be introduced behind the symphysis. The finger is inserted to the ligamentum arcuatum inferior and the joint separated by a blunt-pointed curved bistoury. The pubic bones immediately separate to 3 cm., and by careful separation of the knees and transmitted pressure on the trochanters to 7 cm.; at any rate, so far apart that the large head immediately enters the superior strait and is easily and rapidly delivered by high forceps operation. The assistants at once press the mons veneris so tightly together that the pubic bones touch They are then united by silver wire sutures or strong silk along with the soft parts and the wound closed. A strong and very broad binder, provided with buckles, holds the pelvis together for the next three weeks and is daily tightened. It is not necessary to separate the ligamentum arcuatum nor, indeed, to cut through the entire symphysis, as after half or three-quarters separation the upper ends are 3 cm. apart. In pelves, in which following rachitis the direction of the pubic symphysis and the upper sacral vertebra converge upward, also where the principal hindrance to the entrance of the head is the projection inwards of the upper segment of the symphysis, it is necessary to open only so wide as the individual case demands.

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Ovariotomy During Pregnancy.

Dsirne (*Archiv für Gynäkologie*, Band. 24, Heft. III) has collected 135 cases of ovariotomy performed during pregnancy, from the study of which he has drawn the following conclusions:

(1) The complication of pregnancy with ovarian tumor is to be considered a very grave occurrence in which, with few exceptions, the extirpation of the tumor comes into question.

(2) The further pregnancy progresses, the more dangerous is the situation for mother and product.

(3) The puncture of ovarian cysts and the production of abortion are to be considered only in emergency.

(4) Ovariotomy gives the best results for the mother in the second, third and fourth months of pregnancy; for the product of conception in the third and fourth.

(5) If an early ovariotomy is not possible from various reasons, it is to be carried out in the later months of pregnancy, as good result can even then be expected.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.

ASSISTED BY

WILLIAM A. CAREY, M.D.

The Causes and Treatment of Sinuses Resulting from Abdominal Section.

Andrew F. Currier (*Annals of Gynæcology and Pædiatry*, July, 1892) places the causes of sinuses following laparotomy under three general headings: constitutional, irritative and septic. Tuberculosis, syphilis and certain malignant conditions of the peritoneum or of the abdominal viscera are predisposing causes. The greatest number of cases come from irritative causes. The mechanical irritation produced by the drainage tube (whether it be of glass, rubber, bone or any other hard substance) is sufficient to cause an exudate to form about the tube which becomes organized sufficiently, before the withdrawal of the tube, to resist the pressure of the viscera after the tube is removed, and thus fails to collapse but persists as a secreting canal. Sinuses (aseptic in their nature) may also originate from too many or too large sutures or ligatures, or by the loosening of ligatures around tissues which have shrunk or atrophied. Such sinuses differ from those resulting from the use of the drainage tube in that they are usually tortuous and longer, and have not the thick wall of the former kind. Referring to sepsis as a cause of sinuses, the author thinks the subject as yet too obscure to admit of careful and exact statement.

Sänger is quoted as saying that the experiments of Heinricius, Loebker and Delbet upon cadavera and animals furnish no convincing argument, and that we are still very much in the dark regarding the exact role played by micro-organisms in the matter. The consequences of sinuses of the abdomen are most annoying and deleterious to the patient, presenting such conditions as fistulæ of the intestines and bladder, cystitis, diseases of the kidneys, anemia and intensification of pre-existing tubercular or syphilitic taints. In considering the subject of treatment the author believes that by discarding the hard drainage tube and substituting strips of gauze or similar soft material sinuses may frequently be prevented. The gradual withdrawal of the gauze allows the walls of the sinus to collapse before they become firmly organized and thus the lumen of the canal is gradually lessened. He also believes drainage to be satisfactorily accomplished by this method, and feels that the "entrance and development of poisonous germs within the peritoneal cavity is certainly as little facilitated by this as by the use of any drainage material."

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The alternatives which are to be met in treatment are simple laparotomy, palliative measures or radical ones. The natural reparative power of the system will not infrequently cure a case of this sort if the general health is maintained, but more frequently some active interference is demanded. Palliative measures consist in keeping the surfaces perfectly clean and attempting to remove the thick wall of the sinus by digesting it with a solution of trypsin, or stimulating the tissues to healthy repair by applications of nitrate of silver (twenty or thirty grains to the ounce), or by packing the sinus with iodoform gauze. This latter plan has succeeded in cases where the calibre of the sinus has been small, but failed where it has been large. The use of trypsin must be guarded, for it will digest tissues which should be left intact unless great care be exercised in its application. The author had an opening made in the bladder in one case, and into the small intestine in another case. Before making an application of any substance the sinus should be irrigated, either with simple hot water, or a solution of carbolic acid or creolin, and special efforts should be made to see that every portion of the sinus is freed of accumulation of secretion. If these measures fail to cure the case more radical treatment should be adopted and the abdomen must be opened and the adhesions broken and extensive dissection made in some cases. The greatest delicacy must characterize these manipulations, and it is hoped that while many cases so treated at present prove unsuccessful, yet with increased experience in technique greater results will be obtained.

Rapid Dilatation of the Uterus in Uterine Hemorrhage.

Fifty-two cases of uterine hemorrhage are detailed by Dr. Amand Routh (*The Practitioner*, July, 1892) and the following conclusions drawn:

Menorrhagia, and more especially when metrorrhagia is also present, without obvious cause, necessitates an exploration of the uterine cavity.

The best way to explore the uterine cavity is to rapidly dilate the cervix with graduated bougies under anesthesia.

That with rigid antisepsis there is practically no risk, and very rarely any subsequent pyrexia, unless malignant disease or salpingitis is present.

That even where tubal disease exists or is suspected, exploratory dilatation of the cervix for metrorrhagia of apparently intrauterine origin is not necessarily contraindicated, salpingitis being often secondary to and aggravated by intrauterine disease. Here again antisepsis is all important.

That when fibroids are really present the immediate cause of hemorrhage may be a removable one, such as a co-existing polypus or a fungoid endometritis, and that therefore the uterine cavity should, when practicable, be explored, before removal of the appendages or hysterectomy is entertained.

That in some cases dilatation alone suffices to relieve greatly both the bleeding and the pain.

That if an exploratory dilatation was more often adopted prior to the employment of Apostoli's treatment it would tend to a more exact knowledge of its applicability and put its use on a more scientific basis.

An Operation for the Cure of Aggravated Retroflexion of the Uterus.

The American Journal of Obstetrics, August, 1892, contains a description by Braithwaite, of Leeds, of an operation performed by himself, on a case of retroflexion which had resisted other measures of treatment. The patient was 36 years old, had borne several children, and was in fair general health. There were no inflammatory adhesions to deal with, and the uterus was, therefore, freely movable. Pessaries of various styles and sizes had failed to correct the malposition, and the patient's condition demanded some further effort to be made for her improvement. The object of the operation was to restore the normal anteflexion by passing a strong silk ligature through the fundus and then through the cervix, and approximate these portions of the uterus by making gentle traction and

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tying. The operation was preceded by dilatation of uterine canal sufficiently to admit the index finger of the left hand. The uterus was separated from the bladder precisely as in vaginal hysterectomy, the wound being a little wider from side to side, and the peritoneum pushed up as high as possible, but not cut through. The silk ligature was passed by a long-handled curved needle into the lateral surface of the fundus and out on the corresponding surface, avoiding the pouch, formed by the peritoneum. The two ends of the ligature were then passed deeply into the cervix and tied in the centre, the uterus being well anteflexed by the finger within its cavity. The wound in the vagina was then closed by catgut, continuous suture, thus completely burying the silk ligature. The uterus was now pushed upward into its place, and a Hodge pessary introduced. The relaxed tissue of the vagina required some additional support for the uterus, and a wool tampon was packed around the pessary. After three days this was removed, and it was found that the tissues had contracted considerably, and a smaller pessary was substituted. Shortly afterwards the pessary was removed, as it was found the uterus remained in normal position without it. Patient was advised to assume the recumbant position frequently, and she had no pain after the first week following operation. As it is only about four months since the operation was performed, it is too early to speak of its merits, but the author hopes that the ligament and support of the uterus will have time to regain their normal tonicity before the withdrawal of the temporary support afforded by the silk ligature. It is also probable that by that time some inflammatory or sanguineous discharge will have become organized, and thus assist in retaining the position of anteflexion. The author suggests that in some cases it may seem desirable to cut out a wedge-shaped piece from the anterior surface of the uterus, and stitch the surfaces together, but does not recommend this as a routine procedure. He also promises a later report upon the results of the operation in this and in other cases.

Irrigation of the Peritoneal Cavity in Puerperal Sepsis.

Edward P. Davis (*Annals of Gynæcology and Pædiatry*, July, 1892), describes a case of irrigation of the general peritoneal cavity, which raises the question as to the advisability of such irrigation in the absence of pelvic abscess, "but when the lymphatics of the peritoneum are the seat of a septic process."

The patient was a young Russian woman, confined amid filthy surroundings, and sustaining a lacerated perineum. A few days after labor she was taken to the Philadelphia Hospital and found to be in a septic condition. After thorough disinfection, the perineum was repaired and vaginal douching of bichloride of mercury instituted. A few days later the uterus was curetted and douched with creolin solution, and a sixty-grain suppository of iodoform introduced into the cavity of the uterus. The temperature then fell to normal, but gradually rose again. The patient now began to complain of constant pain in the abdomen, especially in the upper portion. Respiration caused pain in the abdomen; the intestines were tympanitic, but abdomen not greatly distended. Temperature had reached 102°, and her condition was one of marked septic infection.

Although it was not expected that a collection of pus was in the pelvis, the failure of the previous treatment suggested the desirability of inspecting the pelvic viscera, and accordingly the abdomen was opened and the pelvic organs carefully examined. There was no collection of pus discovered; the uterus had undergone a fair involution, there was no pus or lymph about the peritoneum, but it was reddened and turgid as though a general peritonitis were beginning. Therefore the peritoneal cavity was irrigated with four gallons of a saline solution, consisting of 3.10 per cent. sodium chloride and 3.10 per cent. sodium bicarbonate, at a temperature of 110° F. The fluid was directed among the coils of intestines and high up under the diaphragm. A gallon of boiled water followed this, and returned almost clear. A drainage tube was inserted to the bottom of the pelvis, and through this another saline irrigation was given on the second day. The drainage tube was removed "shortly afterwards," and a strip of iodoform gauze carried to the pelvis to indicate the presence of pus, should suppuration occur. This was "soon removed," and the abdomen closed. The irrigation was followed by marked improvement in the patient's condition, and the temperature remained normal for a week, when it again ascended to 102° F., but examination failed to discover signs of peritonitis. She complained of pains in

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some of the joints, and it was found that the septic process had invaded these regions, but the trouble disappeared with the use of free purgation, sponging and alcohol, and the patient is now quite well.

The author suggests the following as the rational plan of treatment in puerperal sepsis: Thorough disinfection of all puerperal ulcers, with vaginal douches, four daily, of bichloride of mercury solution, 1-4000, accompanied with free purgation by salines; turpentine stupes to be used to relieve abdominal pain. If fever and foul lochia are present, curette and douche the uterus and tampon with iodoform gauze, or introduce into its cavity a sixty grain suppository of iodoform.

Intrauterine douches should be given at intervals for not longer than forty-eight hours. Should no improvement follow these measures, the patient must be placed in Trendelenburg's posture and laparotomy performed, and the pelvic organs carefully inspected and any purulent collection removed; or if the general peritoneal has begun to be involved, free irrigation should be employed. A most difficult and important question is: "What indications justify the opening of the abdomen and the practice of radical interference?"

The discussion of this paper, by the members of the Obstetrical Society of Philadelphia, failed to satisfactorily answer the above query. Statistics show that up to date no successful case is recorded of laparotomy and irrigation in diffuse purulent peritonitis, but that is a step beyond an incipient general peritonitis. Irrigation of the uterus, either alone or combined, with the use of the curette, and followed by the use of an iodoform suppository or by iodoform gauze packing, were the measures advocated. Extirpation of the septic uterus and its appendages may become necessary in some grave cases. Simple irrigation of the peritoneal cavity would certainly avail nothing if the uterus and its appendages were thoroughly infected.

In closing the discusion the author remarked that very little light had been thrown upon the main question involved in his paper, viz.: What shall be done in these cases if symptoms of sepsis remain after irrigation, curetting, etc., have been faithfully performed? And he presumed the desired information could not be obtained until we learn more about the pathology of these cases.

Fecal Fistula Cured in Four Weeks.

W. B. Craig (*American Journal of Obstetrics*, August, 1892), reports a case of pelvic abscess following a curetting for hemorrhagic endometritis, associated with perimetro-salpingitis of left side. Antiseptic precautions were taken, but the gauze which was used for packing the uterine cavity was saturated with a 25 per cent. solution of creolin instead of a sublimate solution.

The abscess was removed by laparotomy, and a quarter of a yard of iodoform gauze was packed into the abscess sac and a rubber tube inserted. The abdominal wound was sewed up after thorough flushing, leaving the tube and a strip of gauze protruding from the lower angle of the wound. Whether from the effects of pressure by the gauze, or from damage done the intestine in separating adhesions, or from imperfect suturing of the intestines, or from some other cause, a fistula of the small intestines resulted. The plan of treating this complication was to insure perfect cleanliness of the entire tract by frequent thorough irrigation; first with a 2 per cent. carbolic solution, and afterwards with a 50 per cent. peroxide of hydrogen solution, omitting the latter if irritation was produced, and then packing the tract with gauze. The top dressing was changed very frequently to keep it from being much stained by the discharges from the bowel. Every four hours the fistula would be irrigated and then packed with gauze. As the cavity filled up less and less gauze was used, and in a week the tube was withdrawn. Finally marine lint was substituted for the gauze, being first saturated with Peru balsam to stimulate granulations. The rectum was kept clear by enemata, and food was selected which would give but little residue. The bowels were kept as quiet as possible, and the fistula closed in four weeks and the skin surface in eight weeks after the section. The patient seems perfectly well, and is free from induration about the abdominal cicatrix.

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PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Parasitic Protozoa Found in Cancerous Tumors.

M. Armand Ruffer and J. Herbert Walker, in the *British Medical Journal* for July 16, 1892, publish a preliminary note of their investigations. The demonstration of parasitic bodies in cancer cells presents few difficulties except great care of preparation. Portions of the fresh carcinomatous tissue are plunged whilst still warm into the usual reagents and hardened. The best results were obtained by the use of absolute alcohol and Flemming's solution. The pieces, not larger than one-eighth of an inch at most, remain in the latter fluid from two to three days, are then washed in running water for twenty-four hours at least, and then placed in absolute alcohol, where they may remain for an indefinite time. When ready to be examined they must be saturated with paraffine according to the Naples method. The parasites have a strong affinity for the analine dyes, and beautiful results were obtained by staining the specimens hardened in alcohol with Biondi's reagent, and those hardened in Flemming's solution with an aqueous solution of methyl-green, counter-staining the latter with Biondi's reagent, or by using logwood in the first place and afterward a one per cent. solution of rosa-benzale.

The parasite consists of a central nucleus, that is, of a central part which stains deeply and does not possess a distinct membrane. Around the nucleus the protoplasm is condensed, and from this centre extremely fine delicate rays often extend to the periphery of the organism. These are thought to be concerned in some way with the reproduction of the parasite. Around the parasite, but distinct from it, there is a distinct double colored wall, which stains deeply and is probably from the protoplasm of the invaded epithelial cell. The size varies, sometimes the cellular host increasing to several times its original size. One cell may contain several of the parasites. White blood corpuscles, which have the power of entering the protoplasm of epithelial cells, are said to act destructively upon the parasites, and only enter such cells as contain them. Parasites thus attacked, sometimes by numerous phagocytes, gradually disintegrate.

It often happen in carcinoma that one epithelial cell is enclosed in another. That no mistake has occurred in this particular is easily shown by the use of analine drugs. Indeed, a parasite has been demonstrated within an enclosed cell.

Successful Transformation of Small-pox into Cow-pox.

Thomas Whiteside Hime, in the *British Medical Journal*, July 16, 1892, gives the interesting results of the inoculation of a bull-calf, aged ten weeks, with lymph derived from the vesicles of a small-pox patient. This calf took an undoubted variola of mild type. From the vesicles which formed lymph was secured and inoculated into a second calf, which took no variola, but presented the lesions of vaccinia. When inoculated with fresh vaccine virus, the first calf did not "take" at all. Lymph from the second calf, introduced by inoculation into a child and into a third calf, produced perfectly typical and beautiful vaccine lesions. The writer is convinced of the identity of the two diseases.

Reinfection in Phthisis.

Arthur Ransome, in the *British Medical Journal*, July 23, 1892, follows the opinion, expressed by Lannee, that "no consumptive succumbs to a first attack of tuberculous affection," and that many cases entirely recovering from the first affection die under rein-

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fection. Clinical and *post-mortem* experience give from 20 to 60 per cent. of total recoveries. Most of these cases probably are among the better class of patients who are able to take the necessary precautions, while it is very rare to see recoveries in consumptive hospitals. His views are best expressed thus:

(1) We have now the certainty that in most cases the primary infection must come from external sources, hence there can be nothing unusual in a second infection or even in multiple infections from similar surroundings.

(2) The patient has already proved himself to be susceptible of the disease, or vulnerable by the bacillus, and is, therefore, probably by nature more liable than others to the disease.

(3) By reason of his first attack, also, he is especially prone to become for a second time the host of the invading parasites. His damaged lung is less elastic and less provided with the natural safeguards against its lodgment. We may also presume that the anti-microbic influences of the body, whether phagocytic or antitoxic, are weaker than in the generality of human beings.

(4) It is almost certain that the primary source of infection was to be found in the unhealthy house, or in some usual haunt of the patient, and when he returns to his former condition of life, he will probably meet again with a contingent of the same enemy that made the first attack upon his lungs.

(5) There is abundant evidence as to the existence of infected houses and infected workshops. The distribution of phthisis in towns and in places where bacilli-laden dust is most likely to be met with; its favorite haunts in badly drained tenements, etc., all show the presence of the poison in the places from which most of our patients come, and make it probable that the inhalation of the bacillus will take place again, and that it will be received into susceptible lungs.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

Dermatol in Dermatological Practice.

H. Isaac (*Deutsche medicinische Wochenschrift*, No. 25, 1892) speaks highly of this new remedy in cases where a superficial and drying effect is desired, as in the various forms of intertrigo resulting from friction and sweat; in intertrigo complicated with eczema; in acute weeping eczema; in acute inflammations produced by such substances as corrosive sublimate and iodoform; and in the various affections characterized by superficial losses of substance, as erosions, excoriations and fissures. It is also valuable in burns of the second degree, and in freely secreting leg ulcers, its action being to aid cicatrization.

Dysidrosis and Cheiropompholyx.

A. Santi (*Monatshefte für praktische Dermatologie*, Band. XV, No. 4) discusses the nature of these diseases and the relation of one to the other, and concludes that they do not concern directly the apparatus of the sudoriparous secretion. Cheiropompholyx is a disease sui generis, and is in all probability a neuritic dermatosis, in which the lesion of the sensible nerve elements is seated either peripherally or more probably centrally. The disease which has been called dysidrosis does not really exist, but is a variety of hyperidrosis in which, owing to an abnormal, excessive development of epidermis there results retention of sweat, constituting this so-called disease.

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Europhen as a Local Dressing.

Professor O. Petersen (*St. Petersburger medicinische Wochenschrift*, No. 14, 1892) considers the publications of Eichof, Sichel, Lowenstein and others on this remedy, and gives his own views cautiously as to its value, coming to the conclusion that in minor surgery and in the treatment of chancroid europhen is to be preferred to iodoform.

A Case of Raynaud's Disease of Syphilitic Origin.

Elsenberg (*Archiv für Dermatologie und Syphilis*, 1892, Heft 4), reports a fatal case of symmetrical gangrene occurring in a young woman 22 years of age, the result of syphilitic infection. The disease was of six months duration, and affected the hands, legs and feet. The autopsy disclosed gummata in the liver and a marked degree of thickening in the walls of the small arteries in the neighborhood of the gangrenous ulcers. This thickening was most developed at the branching of the vessels, causing marked narrowing of their lumen, in some instances complete closure. Further, in many of the altered vessels, complete obstruction was caused by coagula, composed of colorless blood corpuscles in process of fatty degeneration, and desquamated endothelial cells. The author concludes that our conception of the pathology of the disease must be widened so as to include not only those cases dependent upon reflex spasm of the vessels, but those also which depend upon trophic disturbances brought about by inflammation of peripheral nerves after injury, infectious diseases, intoxications and affections of the nervous centres.

Staphylococcia Purulenta Cutanea.

In a clinical lecture (*British Journal of Dermatology*, July, 1892), delivered at the St. Louis Hospital, Wickham discuses the rôle played by the pyogenic staphylococci in skin diseases. Following the line of investigation pursued by Bockhart and Brusquet, he has arrived at the following conclusions:

(1) There exists a dermatosis which is caused by the pyogenic staphylococci; it merits the title of staphylococcia purulenta cutanea.

(2) This dermatosis presents divers forms according to the predominance of certain of its morbid elements; these forms are furunculosis, impetigo and certain forms of folliculitis.

(3) There exists a large number of suppurative affections with regard to which some bacteriological and experimental facts are still wanting for the complete elucidation of their pathogenic characters. These are, however, so closely allied to staphylococcia that they merit to be classified in a temporary group under the name of *probable staphylococcia*.

Is Erythema Nodosum Contagious?

Launois (*Annales de Dermatologie et de Syphiligraphie*, No. 5, 1892), records the following observation bearing upon this question: A patient entered the hospital with an erythema nodosum, and during the following eight days three other patients in the hospital, sick with other diseases, presented the same eruption. The ward contained four rows of beds, and the three cases which developed in the hospital occurred in the same row, facing that occupied by the first patient. The possibility of the eruption being due to drugs was excluded.

Xanthoma Diabeticorum.

Morris and Clarke (*British Journal of Dermatology*, August, 1892), review the cases thus far recorded (twelve in number), of this interesting and rare malady, and report a new one. Microscopical examination of papules of various ages, showed the process to be an inflammatory one; a xanthoma nodule resembling closely a patch of atheroma, the deep-yellow color being due to fatty degeneration and infiltration of the cells in the centre of the lesion.

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The authors conclude, from the clinical phenomena and the results of microscopical examination, that the malady is fundamentally of the same nature as the other conditions which have been included under the name xanthoma, and that it may be regarded as proven that there is an affection of the skin closely related to xanthoma planum and multiplex, probably dependent upon an abnormal quantity of sugar in the blood.

Antimony in Diseases of the Skin.

Jamieson and Douglas (*Edinburgh Medical Journal*, June, 1892), report further trials with antimony in the treatment of diseases of the skin. Two cases, psoriasis inveterata passing into general exfoliative dermatitis, and an exfoliative dermatitis tending to spread rapidly, were treated by the internal administration of tartarized antimony, a complete cure following. The first case had become progressively worse under other remedies, but began to improve upon the administration of one-eighth grain doses of tartarized antimony, and within three months a complete cure had taken place. In the second case the improvement was still more rapid.

The authors conclude, from the observation of these cases, that "antimony softens skin, imparting increased succulence to the cells, augments insensible perspiration, improves the nutrition of the integument, diminishes hyperemia, and lessens the tendency to premature and excessive exfoliation. While advantageous in the early congestive stages of acute eczema . . . it is contra-indicated during the period characterized by oozing, though it may be serviceable at a later stage, that of desquamation.

The Treatment of Alopecia Areata.

In a communication, made to the Societé de Dermatologie et de Syphiligraphie (*Annales de Dermatologie et de Syphiligraphie*, No. 7, 1892), Raymond discusses some of the more recent methods of treatment employed for the cure of alopecia areata, and presents a method of his own, which, it is claimed, shortens materially the time required to cure this often intractable malady.

That form of the disease in which the loss of hair is confined to areas of moderate extent in the scalp and beard, is regarded by the writer as quite distinct from that in which the hair fall is more or less general. As in many cases of the first variety, a spontaneous cure not uncommonly occurs at the end of seven or eight months, methods of treatment which fail to bring about a return of the hair within a shorter period than this are regarded as useless.

While admitting that the intra-dermic injections of solutions of sublimate, as practiced by Moty, and the application of vesicating liquids, are of real service in promoting the growth of the hair, yet these methods are painful or inconvenient, and thus difficult to carry out.

The treatment which the author employs consists in the application every morning of the following:

℞. Hydragyri Bichloridi..... .50
Tinct. Cantharidis..... 25.
Bals. Fioravanti[1]..... 50.
Eau de Cologne..... 150. M.

Frictions with this lotion are to be made over the entire scalp, and it is to be rubbed into the plaques with a stiff brush. In the evening the diseased patches are to be rubbed with the following lotion:

℞. Acidi Salicylici..... 2.
β-Naphthol..... 10.
Acid. Acetici Glacial..... 15.
Ol. Ricini..... 100. M.

[1] This is officinal in the French Codex, and is essentially an alcoholic solution of various aromatics with balsams.—Ed.

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The author insists upon a strict adherence to these formulæ, having found that the omission of any one of the constituents is followed by unsatisfactory results. In all the cases in which this treatment was employed, a return of the hair occurred within the first month, and the cure was complete at the end of two months. In those cases in which the alopecia was more or less general, the method gave no better results than the others employed.

The Treatment of Paget's Disease with Fuchsin.

Elliot (*Journal of Cutaneous and Genito-Urinary Diseases*, July, 1892) reports a case of Paget's disease treated by fuchsin. The disease was situated upon the left breast, and was of four years' duration. It had been slowly extending, and was the seat of severe itching and burning, these symptoms having appeared one year after the beginning of the malady. The patient had been under treatment a year without benefit, and the disease was steadily progressing. The following ointment was ordered with immediately favorable results.

℞. Fuchsin ..... gr. ii ss.
Lanolin ..... ℥i.
Aq. Rosæ ..... ʒvii. M.

There was immediate cessation of itching and soreness, the raw and exuding patch healed over and the progress of the affection was entirely stayed. The author emphasizes the necessity of obtaining chemically-pure fuchsin, as the commercial drug often contains arsenic. Ointments varying in strength up to seven grains to the ounce were used, but it was found that one containing more than five grains to the ounce caused more or less irritation.

MISCELLANEOUS.

DEATH OF DR. JOHN J. REESE.

Dr. John J. Reese, the eminent toxicologist, died September 4, 1892, at Atlantic City, at the age of 74 years. He graduated from the art department of the University of Pennsylvania in 1836; three years later he graduated in medicine from the medical department. In 1859 he was elected treasurer of the Philadelphia County Medical Society. He was president of the Medical Jurisprudence Society in the years 1886 and 1887. For a number of years Dr. Reese was visiting physician to St. Joseph's Hospital and Girard College. He was also medical supervisor of the Philadelphia Orphan Asylum from 1858 to the time of his death.

He was Professor of Medical Chemistry in the old Pennsylvania Medical College from 1854 to 1859, and Dean of the faculty. In 1865 he was elected Professor of Toxicology and Medical Jurisprudence in the University of Pennsylvania, in the Auxiliary Medical Department, a position which he filled with great credit, resigning in 1890. From 1861 to 1865 he was an Assistant Surgeon in the United States Army. Among the published works of Dr. Reese are "An Analysis of Physiology," "The American Medical Formulary," "A Manual of Toxicology," and "A Text-book of Medical Jurisprudence and Toxicology." He edited the seventh American edition of Taylor's "Medical Jurisprudeuce."

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SUPPLEMENT.

PREVENTIVE MEASURES FOR INDIVIDUALS DURING TIMES OF ACTUAL OR THREATENED PREVALENCE OF ASIATIC CHOLERA.

IN view of the proximity of the cholera epidemic to this country, and the possibility of its successful entrance, the following exhaustive article by Dr. E. O. Shakespeare, the well known expert on cholera, and present Port Physician, read before the Philadelphia County Medical Society, September 14, 1892, is published in full. Attention is also called to the editorial on the same subject in this issue.

I am requested by the directors of the Philadelphia County Medical Society to express my views concerning the question of "preventive measures for the individual during times of actual or threatened prevalence of cholera," and I cheerfully respond, as any other physician would, prompted by the hope of rendering some useful service to my fellow-citizens.

In my opinion, Asiatic cholera, highly infectious and frightfully mortal as it usually is when it obtains a foothold amid ignorance, poverty and squalor, is fortunately—even in such a favorite locality—of all the dangerous epidemic diseases the most easily and certainly avoided by the individual, if only the proper precautions be constantly and scrupulously observed. Cholera victims may be lived with, handled, nursed and treated with absolute impunity if these *precautions be never once forgotten or neglected.* The cholera poison does not infect the air even of the sick room; it cannot be inspired with the breath; it does not enter through the skin, or through cuts, sores or abrasions of the body. It enters through the stomach only, and assails by way of the intestinal canal.

In the human being it is in the intestinal canal only that this infectious material multiplies enormously, sometimes with extreme rapidity, generating a chemical poison that attacks and destroys the lining of the epithelium of the intestines, causing extensive flakes of the latter to be thrown off, while the raw surface thus exposed, exudes great quantities of the fluids of the blood—constituting together the so-called rice-water discharges, frequently so rapid and copious—and which meanwhile is thence absorbed into the system, to play a formidable role in a direct and vicious attack upon the kidneys, heart and nervous system. The infectious principle has been proved to be the so-called cholera bacillus—an extremely minute vegetable parasite that multiplies in enormous numbers and with incalculable rapidity in the intestinal canal of the victim. Every drop of the evacuation of the bowels and of the stomach of a person who is suffering with Asiatic cholera contains thousands of these infectious parasites. These discharges and everything soiled or contaminated by them are, therefore, highly infectious and very dangerous. Cholera is never

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generated by fright, ill-health or constitutional weakness, filth, starvation or anything else, unless this infectious principle be first introduced into the stomach; in other words, without the actual presence and multiplication of the cholera bacillus in the intestinal canal, an attack of Asiatic cholera cannot occur.

What then are the rational and reliable "preventive measures for the individual during times of actual or threatened prevalence of cholera?" They are crystallized in four words—*prompt isolation; thorough disinfection.*

Inasmuch as the safety not only of the health and of the trade of the locality and its immediate surroundings are involved, but also of a great State, and sometimes of nations in communication with it, are seriously threatened by the escape and spread of the infectious principle elaborated in and discharged from the intestines of the person suffering from an attack of Asiatic cholera, skilful and *constant attendance* is imperatively called for, and *should be provided at the public expense.*

Furthermore, that same public has a paramount interest and absolute right to be assured that every rational precaution against the spread and dissemination of the infectious agent be scrupulously and conscientiously enforced. This is tantamount to saying that the care of the attacked and of the dwelling, as well as the custody or close surveillance of all persons associated or in communication with him or it, should be under the strict control and direction of the jeopardized public, *through its own intelligent and responsible agents.*

The prevention of the spread of infection—of such enormous importance to the public—should, under no circumstances whatever, be entrusted in any degree to the ignorance or careless or conflicting interests of the inmates of the infected dwelling; neither should it be left to the chance of uncertainty through the incompetence or neglect or whimsical notions or personal interests or lack of authority of the private physician. Of course, this means temporary invasion of the private rights and restriction of the personal liberty of a few individuals, whose own security, however, is thereby enhanced, but the public safety demands a temporary sacrifice of private rights under these circumstances, and there should be no hesitation or vacillation in requiring it.

I do not mean to say by this that the family physician called in attendance by the sufferer should be excluded from the performance of his private duties; on the contrary, he should feel, in his capacity as an individual guardian of the interests of the public health confided to his care, that he also must be prompt and careful in the discharge of his duty to his patient, at the same time keenly appreciating his relations as well to the inmates of the threatened household as also to the general public. One of the first things which the family physician should do in the discovery of a patient who is suffering with symptoms that warrant any suspicion that the case may be either a commencing or a fully developed attack of Asiatic cholera is that, immediately he leaves the house, he should promptly send notification to the Board of Health, without any delay whatever.

So long as there are in the town or city threatened *only a few scattered cases of the disease* the most strenuous efforts should be made to prevent the establishment even of a localized epidemic. The daily work of a private physician, if he be sufficiently watchful for the discovery of such scattered cases, will be a

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great adjunct to the efforts made by public health officers in stamping out the infection before there is any chance that it may spread throughout the community.

Under the circumstances surrounding us at present, with cholera in the port and city of New York and the possibility of its arrival by any ship proceeding from Europe with emigrants on board, there is no little danger, as experience has so often proved, that the infectious germs may escape quarantine inspection, and proceed with the ship's inhabitants, released from quarantine, to their ultimate destinations, and produce there the commencement of an epidemic.

It is a well known fact that looseness of the bowels and other disturbances of the digestive apparatus very frequently precede the onset of an attack of cholera. Such cases should be regarded with suspicion and promptly remedied. When the onset is so well marked as to leave little doubt in the minds of the experienced of its infectious nature, of course the most careless physician will act vigorously. On the other hand, attacks of so called cholera morbus are not infrequent, especially during the summer and early fall months, among people who are addicted to imprudences of any sort, especially of injudicious eating and drinking. These attacks are particularly likely to occur among immigrants who, for the first time in their lives, indulge in copious drafts of ice-water, eat ice cream, green corn and other such articles of food and drink.

I cannot too earnestly urge upon the medical profession the great importance of unusual watchfulness at this time for undue bowel disturbances, especially for attacks of so-called cholera morbus, particularly when they occur in people recently landed from emigrant ships. An attack of what seems like cholera morbus among this class of people should be invariably looked upon with suspicion, and in every such case the precautions should be taken of thorough disinfection of stools and prompt isolation of the patient until the real nature of the attack shall have been determined, and the health authorities should be immediately and unvarably notified.

In connection with cholera morbus, I may say that there is a most indisputable authority for the assertion that the *clinical symptoms alone* are incapable of furnishing to the most skilful diagnostician living reliable evidence upon which he can speedily determine whether a case in charge is one of Asiatic cholera or of simple non-infectious cholera morbus.

From the time that Malgaigne went to Warsaw, in 1832, to make the acquaintance of an unknown plague in Europe, until Dr. Robert Koch, in 1883, visited Egypt and India to investigate the same disease, many have been the eminent physicians who have left their homes to study cholera in distant regions, and many have been the exhaustive observations of the disease in all its forms and characters which have been made by the most distinguished clinicians and pathologists of the world during the times when it has repeatedly ravaged their own lands. The whole category of symptoms and visible signs by which Asatic cholera under its various guises manifests its presence had been so often the object of the keenest and most intelligent examination, and so frequently the subject of most learned disquisitions, that its prompt and unhesitating recognition might reasonably seem, when it appeared in Europe in 1884 and 1885, to have been a matter of no great difficulty.

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But what is the truth? Look at the recent experience of France, and Spain, and Italy, in 1884 and 1885. In each the prompt, vigorous and judicious action required for the extinguishment of the spark before it could burst into an incontrollable conflagration was paralyzed by doubt and uncertainty concerning the real nature of the disease. While epidemic cholera was surely planting itself in France in 1884, few physicians asserted its presence with firmness, and many denied it most positively. To remove the hesitation which this conflict of opinion naturally engendered, Drs. Brouardel and Proust were commissioned by the French Government to report upon the nature of the doubtful disease at Toulon. Those experimental physicians had the knowledge and the courage to unhesitatingly pronounce it epidemic cholera, but unfortunately they were unable to state its origin. On the other hand, Dr. Fauvel, Inspector-General of Hygiene, placed the weight of his high authority against that opinion, and reproached the commissioners with having uselessly alarmed the country and caused great damage to the commerce of France. Later, the national consulting committee of hygiene officially declared that the disease was not Asiatic cholera, but was a benign cholera, non-contagious, and produced by local causes, and that it had nothing to do with importation from without, and possessed no power of epidemic dissemination. Added to these misleading statements was the impression produced by the majority of the medical press of the country in industriously supporting the assumption that the epidemic would limit itself to the locality of its outbreak, and would soon cease.

As in France, similar doubt and uncertainty and inaction existed in Spain at the commencement of the invasion of cholera in 1885. It is true that a few scattered cases of cholera, mainly confined to some localities in the province of Alicante, had appeared in 1884, but the epidemic which so frightfully ravaged Spain in 1885 undoubtedly spread from the town of Játiva, in the adjoining province of Valencia. After having lingered in that vicinity through the winter under the mask of *suspicious cases*, during the fourth week in March of that year the epidemic raised its head in this town. Public rumor to that effect, originating with the physicians of Játiva, soon reached the Governor of the province and the city of Valencia; and in response to the demands of the populace a special commissioner was dispatched to investigate. Arrived in Játiva, a few cases examined, and a hasty consultation held with the local board of health, an official declaration was hurriedly published that Asiatic cholera did not exist in that place and later the provincial board of health confirmed this opinion. Nevertheless the unknown mysterious disease continued to spread throughout the town, and, besides, rapidly invaded village after village, unchecked by any active opposition. Notwithstanding, as late as the 15th of April, the same provincial board of health formally congratulated the people upon the favorable course and slight importance of the disease, which was even then officially looked upon as *only suspicious*. During this time of inaction and hesitation on the part of the authorities there reigned the greatest anarchy of opinion among the local physicians. A few affirmed their belief that they were dealing with genuine Asiatic cholera; some insisted that the suspicious visitor was nothing more than the common sporadic cholera; others declared it to be a per-

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nicious fever of choleraic type; many claimed that it was malignant malarial fever; yet others held that it was a kind of entero-gastritis; and not a few pretended that it was the bubonic plague, but without the boils. The whole history of the invasion of Egypt in the first place, and of France, Italy and Spain later, is nothing but a repetition of similar doubts on the part of the physicians having to deal with the disease, and of inaction on the part of the local authorities whose business it was to adopt and enforce measures to check it.

But why continue longer in narration of this disgraceful and unfortunate history of doubts and contradictions and vacillations concerning the nature of the disease which have characterized that as well as all former visitations of Europe by epidemic cholera? It forcibly illustrates one most important fact.

That fact is, *unless the investigations of the German commission have brought to light in the presence of the cholera bacillus a sure and unmistakable diagnostic sign of Asiatic cholera which can be quickly distinguished*, in spite of the great and valuable knowledge of the disease gained by the study of former epidemics, *we do not at present know how to recognize Asiatic cholera in time to safely guard the people against its deadly power.*

In Egypt and in France and in Spain, and in Italy, the character of the disease and the consequent danger were not fully recognized until it was too late to arrest its destructive course, and thus it has been everywhere and at all times in the history of the march of epidemic cholera.

Fortunately for mankind, the observations and experience of the last nine years have at last placed at the disposal of the medical profession and of public health officers most positive means of recognizing in a reasonably short time the infectious nature of the discharges of a suspected person by means of bacteriologic examination. The health authorities should *invariably*—and the private physician whenever possible—resort without delay to this certain means of diagnosis in *every suspicious case*, and the suspected person and those associated with him should be kept in strict isolation and surveillance until the results of such an examination be obtained. It is only in this manner that a population can be insured against the establishment of an epidemic following the appearance of scattered cases of choleraic diarrhea and masked cholera, which, because of their lightness, may escape notice, or because of their similarity to other diseases may be mistaken for the latter. Let every physician, therefore, regard it as a part of his duty to the general public to vastly supplement the watchfulness of the health officials in the effort to detect and isolate at the earliest possible moment the *few scattered cases* which almost invariably precede the establishment of a widespread epidemic of Asiatic cholera. Let no misplaced regard for the tender sensibilities or vigorous protests of his patients or of their friends induce him at such a time to attempt concealment or delay, in the hope that the attack may ultimately prove to be void of the dreaded character. There is reason to believe that the awful calamity which has befallen the city of Hamburg is traceable to the criminal neglect of a single man. Let every physician, therefore, fully appreciate the importance of his responsibility to the general public. Besides alertness in the discovery and promptness in reporting suspicious cases, the physician could perform a great public service by notifying the health department of nuisances and defective plumbing, drainage, etc.

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Means and Mode of Infection.—Since the infectious agent exists in the evacuations both from the stomach and from the anus, various materials become capable of conveying the infection of this disease—such as clothing soiled with this matter; hands fouled with it; articles of food and drink which have been contaminated with it. It is by means of soiled clothing and personal effects upon which this agent is preserved in a more or less moist condition that the infectious principle is usually conveyed long distances, both by land and by sea. The contamination of water-courses and small streams by vomit or dejecta is perhaps the most frequent and certainly the most rapid means of producing a sudden and widely extended outbreak of cholera infectiosa. The water courses are not infrequently also contaminated by washing therein the personal effects of cholera patients.

Regarding the comma bacillus of Koch as the infectious agent, it has been established by numerous and exact experiments that this microbe is not only able to live for a considerable length of time in water, but is even capable of enormous multiplication therein, especially if the water contain a certain amount of organic or vegetable material. The use of such contaminated water for drinking, bathing and culinary purposes is perhaps the most frequent mode of introduction into the human organism of the contagious principle of cholera infectiosa.

The common practice of the watering of milk also renders this article exceedingly and especially dangerous to children during periods of the prevalence of cholera and, where extensive and sudden local outbreaks of the disease can not be attributed directly to the use of contaminated water, it is generally the milk which conveys the cause of infection. Other articles of food are in a far less degree liable to contamination; but there are numerous examples of infection occasioned by thoughtless or accidental contamination of vegetables, fruits and other nutrutive material.

Experience has abundantly proved two laws, which have an important bearing upon the spread of cholera: (1) *The tendency to infection varies exceedingly among individuals, and is with the majority small.* (2) *Disturbed conditions of the digestive apparatus greatly increase the susceptibility of an individual and render him far more liable to an attack after exposure to the infection.*

As has already been said, it is exceedingly improbable that the infectious principle is ever conveyed to the healthy by the medium of the air; it is certainly never transported to any considerable distance in this manner. It is very doubtful, if even possible, that infection may take place through the lungs. It is certain that it cannot be effected by cutaneous absorption. The disease, therefore, cannot be properly termed truly contagious in the common use of that word.

It is extremely doubtful if there be a single well-authenticated case upon record where the disease has been conveyed in any other manner than by the introduction of the infectious principle into the stomach.

Still, regarding the comma bacillus of Koch as the infecting agent, it has been abundantly proved that the normal acid juices of the stomach are capable of destroying it. It is therefore, not surprising that the examples are multiplied

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where water and other ingesta known to be infected have been swallowed, intentionally or accidentally, by healthy persons, without harm. If, however, this living infectious principle, the comma bacillus of Koch, escape beyond the lower end of the stomach and pass into the small intestine, the contents of which have an alkaline reaction, multiplication with enormous rapidity therein, elaboration in considerable quantity of the poisonous ptomaine, and the establishment of the disease which we recognize as cholera infectiosa, become inevitable.

The considerations already advanced, suggest prophylactic measures which experiment and experience have proven to be trustworthy. If the stomach be properly guarded against the introduction of the living infecting principle, the individual will be necessarily protected against the danger of an attack. Protective measures may be considered from two standpoints: A.—with regard to the person suffering from an attack of the disease: B.—with regard to the healthy individual exposed to infection.

A.—*With regard to the person suffering from an attack of the disease:* The evacuations from the stomach and the bowels should be immediately disinfected; where this is thoroughly accomplished, it is impossible for the infection to spread beyond the attacked. The dejecta and the vomited matter should be passed into a vessel containing a quart or more of a strong solution of carbolic acid—one part to twenty of water or of chloride of lime, 10 per cent. strong and immediately after the evacuation a sufficient amount of the disinfectant should be added to make the whole quantity equal to the bulk of the evactuated material; the whole should then be gently stirred, and afterward allowed to stand for fifteen to twenty minutes, when it should be removed and emptied into a pit containing unslacked lime, and be immediately covered by a quantity of the same material. If circumstances render it impossible thus to dispose of the disinfected evacuations, they should be emptied into a large earthen vessel containing a quantity equal to their bulk of a solution of chloride of lime, 10 per cent. strong and stirred thoroughly therein; after remaining there for an hour or more, they may be emptied into a drain which leads to the sewer. The clothing of the patient as well as the soiled bed-linen, immediately after removal, should be disinfected by thoroughly soaking for an hour or more in a large quantity, more than sufficient to cover them, of a strong solution of carbolic acid, one part to twenty; or they should be immediately subjected to the prolonged action of boiling water or steam. The anus, hands, and mouth of the patient should also, immediately after an evacuation, be washed with a disinfectant in this case, however, weaker than above indicated, say one part to 2,000, of bichloride of mercury and water, for the anus and hands, and for the mouth water slightly acidulated with sulphuric acid. The hands of the attendants, also, should be washed with the same weak solution of bichloride of mercury after handling the patient. Under no circumstances should the attendant, or any one else, eat in the same room with the sick; and, as an invariable rule which should be scrupulously observed, no person who has been in direct contact with the sick or with any of his personal effects should eat without first thoroughly cleansing and disinfecting the hands.

B.—*With regard to healthy persons exposed to the infectious principle of the disease:* Remembering what has already been remarked concerning an increased

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susceptibility to infection by reason of disturbance of the digestive apparatus, it is strenuously insisted upon that all causes, of whatever nature, of disturbance of the functions of the stomach and intestines, should be studiously avoided; such as intemperance of all kinds, either in drinking or in eating; all irregularities of personal habits, either as to the time of meals, occupation, exercise, or hours of sleep; all emotional excitements should be removed; in short, every circumstance which experience has shown may exercise a disturbing influence upon these important functions should be carefully guarded against; the use of articles of food which are liable to occasion indigestion, or to cause an unusual or unhealthy activity of the digestive apparatus, should be interdicted; children should be carefully prevented from indulging in exhausting sport or exercise, and should be carefully shielded against intemperate weather; it is all-important that the functions of the skin should be kept regular and active by a sufficient amount of seasonable clothing by day and by night; particular care should be taken that revulsions of blood, produced by chills, from the cutaneous surface to the internal organs, especially the abdominal, may not occur, and in this connection it is strongly recommended that the abdomen be enveloped at night by a broad band of flannel, in order that during restlessness in sleep the skin of the abdomen may not be exposed to the direct action of the air; cold baths should be avoided; the surface of the body should be washed at not too frequent intervals, by sponging with *tepid* water, and afterward dried thoroughly by vigorous rubbing with a rough towel; meanwhile the body should be protected from draughts. Irregularity and intemperance in eating and drinking have already been alluded to. It is important that imbibition of large quantities of water or other fluids at intervals between meals be avoided, for, if there were no other reason, it is a well known physiological fact that in the intervals of digestion the reaction of the gastric juices is neutral and sometimes even slightly alkaline. If contaminated water or milk should be swallowed in large quantity during this interval, it is clear that the probability of the living infecting agent passing through the pylorus into the small intestine is greatly increased, and the possibility of an attack much enhanced. In a house where a cholera patient is suffering, the children should be kept out of the sick room, as all others not in attendance upon the sick. But if, as often occurs among the class of people who are mostly the sufferers from cholera—the poor and the squalid—there be only one common room for the use of the family, no one should on any account be permitted to occupy the same bed as the sick, and during the day, as also during the night, all should avoid as much as possible contact with the sick bed.

Attention to the preparation of food is a matter of extreme importance to all persons exposed to the infection of cholera, and especially to children. It goes without saying, that the materials consumed should be perfectly fresh and sound in every respect, and that the water and milk employed should be absolutely free from the living infecting principle, as well as pure and healthy. As a guaranty against the possibility of infection by means of water or milk, both should be thoroughly boiled before use, and, as it is possible for the cholera-microbe to multiply rapidly both in water and in milk, the boiling should be

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very recent. Coffee and tea should be *recently* made and *served hot.* All food should be *thoroughly* and *recently* cooked. No raw fruit of any description, except possibly a moderate quantity of perfectly fresh, ripe and absolutely clean fruit should be eaten. *Salads* and other such articles should be *interdicted.* Bread, as well as butter, should be carefully protected against the possibility of contamination. The culinary utensils and tableware should be *scrupulously cleaned* with *boiling water.*

The hygienic condition of the dwelling and its surroundings should be made as perfect as possible. All decaying animal or vegetable matter should be removed. The house drains should be free and clean, and flushed with a sufficient amount of water at intervals, followed by the emptying therein of a liberal quantity of strong solution of copperas in water, or of a five per cent. solution of carbolic acid. The cess pits and the privies should be kept clean and free from odor by the use of unslacked lime, large quantities of copperas, or other similar inexpensive materials. The supply for *drinking-water* should be *scrupulously guarded from possible contamination of any kind.*

Among the precautions to be enforced against a threatened attack of Asiatic cholera in anyone, but especially in the young, one of exceeding importance is watchfulness over the condition of the alimentary canal. In a large number, perhaps the majority of instances, an attack of cholera is preceded some hours or days by derangements of the digestive apparatus, such as distress or a sense of fulness or heaviness in the stomach, of gastralgia or nausea, or of occasional vomiting; or the disorders may be limited to the intestines only, and be manifested by vague general abdominal uneasiness or slight fleeting pains, or active peristaltic movements which can be seen or felt through the abdominal walls; and all or any of these may be associated or end with diarrhea, and sometimes with a tendency to disproportionate prostration or, again, the disorders of the stomach and intestines may be combined.

If these disturbances of the alimentary tract are properly discovered and remedied, many an attack of cholera will be thereby avoided. In such cases absolute rest in bed, and, if possible, also total abstinence for a day or two from food, should be enjoined; if there be reason to infer the presence in the stomach of undigested food, a single emetic dose of ipecac should be administered; or if there be visible peristalic movements of the intestines, or diarrhea, these should be controlled respectively by small doses of opium in a convenient form, and of such drugs as salol, naphthalin, or analogous compounds.

What has been thus far said applies especially to individuals; but unfortunately, in this disease, public interests and relations must also be regarded, and from this standpoint, *so long as there are in the locality only a few scattered cases of the disease*, the utmost efforts should be made to prevent the establishment of an epidemic.

It is obvious that the evacuations of the intestinal canal of the attacked should, without loss of time, be carefully disinfected. But by no means all suffering an attack of cholera infectiosa are, especially in the earlier stages of the disease, so ill that they cannot be out of bed, and even out of doors engaged in their ordinary vocations. Yet experience has abundantly proved that those

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suffering "a walking attack" carry in their intestinal canal the infectious agent of cholera, and are capable, under favoring circumstances, of establishing a centre of infection wherever in their movements they may chance to void these intestinal contents. Hence the necessity of temporarily restricting the liberty of all inmates of the infected dwelling and of all persons in close communication with it, whether at the time of infection they are evidently suffering or not. All such persons should be isolated and kept under strict surveillance until the extreme limit of the period of incubation (say, five or seven days) has fully elapsed, *counting from the commencement of the surveillance.* If during these five days no sign of even a slight or "walking attack" has made its appearance, and finally if a culture-test, as already described, of the feces, has indicated the absence of the comma bacilli of Koch, the individual temporarily restrained of his liberty both for his own benefit and for that of the public may be without danger restored again to the full enjoyment thereof.

To summarize and express in a single sentence the precautions which are effective against Asiatic cholera: keep clean, live regularly, eat moderately, eat and drink nothing that has not been subjected to a high temperature recently; never eat before thoroughly washing and disinfecting the hands. Pay no attention to prophylactic medicine. If any of them are good, they are not needed if the above precautions are strictly observed.

I have, in this popular essay, purposely avoided discussing anything which is not at present entirely practical. I have not mentioned preventive inoculation which, I am convinced, will become, in the very near future, one of the most certain means of preventing an attack of Asiatic cholera, as well as stamping out quickly an epidemic.

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ORIGINAL ARTICLES.

ADDRESS INTRODUCTORY TO THE 127TH COURSE OF LECTURES IN THE MEDICAL DEPARTMENT, AND THE 15TH COURSE IN THE DENTAL DEPARTMENT, OF THE UNIVERSITY OF PENNSYLVANIA.[1]

By John Ashhurst, Jr., M.D.,
Barton Professor of Surgery and Professor of Clinical Surgery, University of Pennsylvania.

Gentlemen of the Medical and Dental Classes of the University of Pennsylvania:—In the regular order of rotation which prevails in our Faculty, it becomes this year my privilege to welcome you, as I do most heartily, within the precincts of our ancient School of learning. It will be the pleasure, as well as the duty, of my colleagues and myself, to open to you here the pleasant paths of scientific study, to introduce you to the sunny fields whence you may pluck at will the fair flowers of clinical experience, and to point you to the cool grottos whence spring the pure and limpid springs of therapeutic resource which may enable you to revive those who faint from weariness and sorrow, to strengthen those who perish from feebleness and disease, and to staunch the flowing blood and bind up the wounds of those stricken by sudden casualty in the various chances and changes of the ever-struggling, never-resting activity of our modern civilization.

In this year of our blessed Lord and Saviour, eighteen hundred and ninety-two, the thoughts of all Americans are constantly turning back four centuries to the time when Christopher Columbus set sail on his first famous voyage of discovery, which revealed the existence of a Western World; and, as the traveller halts occasionally in his onward course, and not unprofitably looks back

[1] Delivered October 3, 1892.

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on the ground already trod, it has occurred to me that it might not be without interest to you to turn with me for a few minutes in retrospect, and glance at the state of Surgery at the time when the illustrious voyager embarked on that eventful journey.

Just four hundred years ago, in the year 1492, was published at Venice the second edition of the Six Books of Surgery of Peter of Argellata, Professor of Philosophy and Medicine in the University of Bologna, where, according to the habit of the time, he expounded to his pupils, during many years, the Canon of Avicenna. Few of my hearers, probably, know even the name of this almost forgotten teacher, and none, probably, have ever seen his book; and yet the author was one of the most intelligent physicians and surgeons of his age, whose statue, erected by his grateful and admiring contemporaries, did until recently, if it does not still, adorn the Anatomical Amphitheatre of the famous University in which his laurels were won. His Six Books of Surgery formed a portly folio, which in forty years passed through five editions, and contained observations and precepts, the value of which has not been impaired by the many revolving years that have passed since they were inscribed on his pages. Argellata clearly pointed out that the power of muscular contraction in a part might be lost while its sensibility was retained, a well-observed clinical fact which waited its explanation for more than three hundred years, until Charles Bell demonstrated the existence of separate motor and sensory nerves. He recommended compression in the treatment of indolent ulcers, a therapeutic means, the value of which is still recognized by every surgeon in the out-patient departments of our hospitals. Still more, he insisted on the harm often done by the practice of closely stitching up wounds under all circumstances, a surgical error which still claims its victims; invaluable as the suture is when properly used, it is capable of doing much harm, and hardly a year passes that I do not see some case of gangrene traceable to the excessive tension caused by the superserviceableness of the medical attendant in sewing up tightly a bad lacerated wound.

Some years before Argellata, though his book was not published until the last year of the century, flourished Leonard Bertapaglia, Professor of Surgery in Padua, and a celebrated practitioner who also, we are told, succeeded in acquiring by his profession considerable wealth. He appears to have been the inventor of the tenaculum, or sharp hook, still used in surgery, but his fame mainly rests—let this be an encouragement to first-course students—on the fact that in two successive years, 1439 and 1440, he dissected two human bodies; and though his Chirurgia, mainly a commentary on Avicenna, contains little or nothing of value, and indeed reveals much credulity on the part of its author, yet, in the language of Haller, "You will pardon the wretched astrological superstitions of the age in a man who, nevertheless, devoted himself to anatomizing."

Another distinguished Italian surgeon, Anthony Benevieni, of Florence, was likewise a contemporary of Columbus, and was one of the first writers in our profession to lay proper stress upon the importance of a knowledge of morbid anatomy. Among the subjects which he treated of, may be mentioned

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cataract, vesical and biliary calculus, and abscess of the mesentery; he is said by Otis to have practised dissection in two cases of hip-disease.

French surgery had, even in the fourteenth century, attained a position of great dignity through the labors of Pitard, founder of the College of St. Côme, and his successors, and about 1474 we find Germain Colot, a distinguished practitioner of his art, and one who was in high favor with the king, Louis XI, restoring lithotomy, which had for centuries been in the hands of travelling empirics, to its proper place as an operation of legitimate surgery. Colot learned the steps of the procedure (which seems to have been after the suprapubic method) from one of these peripatetic stone-cutters, named Norcini, and after practising upon the cadaver obtained permission from the monarch to try the operation upon a condemned criminal who had suffered frightfully from calculus for many years, and who was promised his life if he should not die under the surgeon's hands. The experiment was completely successful; an unworthy life was preserved, probably for future malefactions; but lithotomy became an established mode of treatment in the hands of French surgeons. Another Colot, Laurent, was prominently connected with the introduction of the median operation about eighty years subsequently.

In Germany, we find contemporary with Columbus an army surgeon, Heinrich von Pfolsprundt, who about 1460 wrote a treatise (not published, however, until 400 years later), containing one of the earliest, if not the earliest, account of gunshot wounds. He also described an operation for the restoration of a lost nose, thus antedating Taliacotius by more than a century. The work of another German surgeon of this time, Jerome of Brunswick, obtained the honor of an English translation, and appears to have been the first surgical work printed in our language, the Rosa Anglica of John of Gaddesden (which again bears the date of Columbus' year, 1492) having been published in Italy, and in Latin.

Thus it is seen that, with the invention of printing, Surgery, as all the sciences, had advanced with rapid strides, and even before the discovery of America had attained a dignified if not a commanding position in almost all parts of the civilized world. During the next century her progress was still more rapid, and we find her annals illustrated by the great names of Paré, De Vigo, Guillemeau, and in England Gale, Woodall, and Lowe. The story of Paré's introduction of the ligature as a substitute for the hot iron in the treatment of hemorrhage after amputation, is so familiar that I need not repeat it: condemned in no measured terms by Gourmelen, Professor of Surgery in the Royal College of France, who was himself no mean surgeon, and who well represented the traditionalism of his day, Paré and his discovery have gained the award of immortal fame, while old Gourmelen is hardly remembered except, like Thersites, for his display of ill temper.

"Wrongly, therefore," writes Gourmelen, "and too arrogantly, has a certain inexperienced and rash person dared to condemn the burning of vessels after the cutting away of a dead limb, although most highly commended by all the ancients and always approved, wishing to teach some new method of tying vessels, contrary to all the old physicians, without reason, without experience

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and judgment, and has not considered that much greater dangers threaten from that same new tying of vessels (which he wants to be applied with a needle, deeply transfixing the sound part) than from the burning itself; for if he has pricked with the needle some nervous part, or a nerve itself, while he is absurdly trying to constrict a vein in such a new and unaccustomed manner, a fresh inflammation will necessarily follow, from which a convulsion, and from the convulsion quick death."

Authority and logic, you see, were both against Paré, and yet now 300 years later, surgeons are still tying vessels, and Gourmelen is forgotten. The moral is obvious: a discovery or invention of real value will live; truth will prevail; and though error, or falsehood, may triumph for a season, the whirligig of time will set things right after a while.

You, gentlemen, students of medicine and of dentistry, come to us not merely to acquire a knowledge of facts, or of what are now regarded as such—for, as Hobbes, of Malmesbury, put it, there are more false facts in the world than false theories, and the facts of to-day may be the effete superstitions of to-morrow—but to cultivate those powers of mind which will enable you to sift and analyse the evidence presented in favor of all assertions claiming to be facts, which may be brought before you in regard to the science and art of your chosen professions; to promptly seize and assimilate what is really true or valuable, to as promptly reject what is obviously false or worthless, and to maintain a judicious reserve as to plausible doctrines which have a semblance of verity, but the actual truth or falseness of which cannot be demonstrated except by the test of time which tries all things.

Hence the importance of your paying serious attention to those branches of professional study which, being fundamental and radical, are placed at the beginning of your curriculum, and without a sufficient mastery of which you cannot hope to become scientific physicians or surgeons, though you may indeed, as some are satisfied to do, acquire a crude, empirical acquaintance with the use of remedies—knowing that a dose of salts will purge, and that opium will produce sleep—or a certain handiness in the use of the knife, and in the application of bandages and dressings.

In your first year of study, a large proportion of your time will be occupied by anatomy and histology, and by general chemistry. The former will teach you the structure of the human body, the relations of its component parts, and the minute arrangement of its various tissues; and the latter will reveal to you the elementary principles from which all matter is formed, and the laws which govern the atoms of the various elements in their combinations. An accurate knowledge of anatomy is perhaps more obviously essential for the surgeon than for the physician, and the operator would certainly be in a pitiable situation who, uncertain with what he was dealing, should undertake to divide a great nerve instead of a tendon, for the straightening of a contracted limb, or to resect an artery instead of a nerve, for the cure of neuralgia. A "natural bone-setter" may by a lucky twist, or by brute force, happen to reduce a dislocation—though more frequently he gets his fame by declaring a joint dislocated which is only sprained—but the educated surgeon, familiar with the anatomy

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of the part and knowing the sources of resistance, applies gentle traction or pressure in the direction in which it is needed, and, utilizing the muscles and ligaments of the injured joint itself as his mechanical powers, restores the displaced limb without violence, and with no damage to the surrounding tissues. But visceral anatomy, at least, is equally essential to the practising physician: how can he possibly differentiate cardiac diseases without knowing the structure of the heart, or arrive at a correct diagnosis in pulmonary maladies if ignorant of the anatomy of the lung?

Influenced by the utilitarian spirit of the day, which exalts what is called "useful knowledge," over that which is sometimes called in opposition "pure science"—as if the highest human knowledge in all departments was not that which is founded on, and the direct offspring of, scientific study—influenced, I say, by this utilitarian spirit, it has become the fashion to undervalue the importance of chemistry in the education of a physician, and to declare that because much of it is soon forgotten, it might as well never have been learned. But the same course of reasoning would not only exclude from a student's curriculum all the scientific elements of a liberal education, but, if pushed to its full limit, would restrict his attention to one or two small nooks or corners even of the broad field of practical investigation; and instead of sending into the profession men of broad scope and high culture, our schools would produce a stunted race of half-fledged specialists—for even good specialists cannot be made in this way—who would neither do credit to themselves nor be of benefit to humanity. I have known students to offer the vain excuse for failure in a surgical examination that they intended only to practise medicine; but as the surgeon who knows how to use his hands, and nothing more, is but poorly equipped for the practice of his art, so is the physician who has no knowlege of external maladies. For my own part I should be glad if the liberal or purely scientific portion of medical education were even broader and deeper than it is, and if every student had not only competent acquaintance with the Greek and Roman classics, but with the higher mathematics also; and if chemical study did nothing more, I should still prize it for its undoubted influence in developing the analytical powers of the student's mind.

But chemistry does more; and, properly regarded, is as well entitled to be called "useful knowledge" as any branch taught in our lecture rooms or laboratories. In the large department of urinary diseases, where physician and surgeon meet on equal ground, and where, it must be confessed, both are often put to their wits' end to afford relief to their patients, a practical knowledge of chemistry is absolutely essential to success; how often have I known a cystitis aggravated instead of cured by the patient being drenched with alkaline mineral waters—given on what are called "general principles"—when the urine was already so alkaline that the bladder rebelled at its presence and expelled it every hour, thus depriving the patient even of the blessing of sleep; or, on the other hand, enuresis in a child supposed to indicate the presence of stone, and, the sound failing to confirm this diagnosis, treated in all kinds of ways, even by circumcision or by the domestic remedy of the rod, when the source of irritation was simply an excess of uric acid, kept up by the use of food un-

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suited to the patient's age, and to be cured by regulating the diet, and by the use of simple remedies indicated by the chemical reaction of the secretion.

Well then is it that your time during your first year of study should be largely spent in the anatomical rooms and in the chemical laboratory; your other studies, in the medical department, will be physiology, directly based on anatomy and chemistry, teaching you the functions and actions of the various parts of the body in health, and without a knowledge of which you certainly will fail to understand the perversions of function and misdirected actions met with in disease; a brief outline of general pathology, attention to which will enable you to appreciate the instruction in special pathology and morbid anatomy which you will receive subsequently; hygiene, the complement to therapeutics, the one teaching how to preserve health, the other how to cure disease; physical diagnosis, as far at least as a study of the sounds and other signs elicited by exploration of the organs in their normal state, a necessary precedent to a comprehension of the same signs as modified by the various processes of disease; and bandaging, a practical familiarity with which cannot be too soon obtained, the mechanical facility or "handiness" thus acquired being of great value to every physician, even if he should not be frequently required to apply surgical dressings when he enters upon practice. It is also provided that in your first year you shall attend the general clinics, medical and surgical, at the University Hospital, because, although you will not, of course, be able to appreciate, or even understand, all the remarks of the lecturers, yet you will thus acquire a certain knowledge of the external physiognomy of disease and injury, and cases thus seen, even though not understood at the moment, will in future years be recalled by memory, and will serve to throw light on doubtful points of diagnosis or treatment. In the dental school, students in the first year begin the systematic instruction in mechanical and operative dentistry which is to fit them for their special department of practice.

There are two mistakes which students are apt to make as regards their studies, mistakes opposite in tendency but equally injurious: one is to neglect the branches to which they ought to give attention, in the premature effort to pursue other branches which seem to them more important, because, as they think, more practical; and the other is to attend only to the particular subjects on which they expect to be examined at the close of the current session, trusting to luck, and hoping that some how or other they may be able to make up what they have lost when the course is repeated. The latter error is, I think, the more common at the present day, and it is a very grave error; not only are the lectures of your teachers not repeated identically every year—in many branches, as in surgery, for instance, the subject is so large that it is with difficulty crowded into two years—but even if they were, the most attentive listener and the most successful note-taker will find that he has unavoidably missed many points of importance in his first hearing, which he will be glad of an opportunity to gather up when the subject is again brought before him. In connection with this, I must refer to an assertion which is sometimes made by both physicians and students, to the effect that the attendance upon didactic lectures is of little value, and that all that is there obtained might be more conveniently

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acquired by reading a text-book; this criticism upon didactic instruction is usually made by physicians who have no practical experience in teaching; and students who act upon this plan are, when examination-day comes, often found to have forgotten to read their text-books also. Certainly, while the human mind is constituted as it is, there will be found, with the average learner, nothing as efficient in conveying instruction as the spoken word, with accompanying ocular demonstration. Text-books have their proper place in the medical student's curriculum, and he may with great advantage supplement his notes by reading up the subject in his text-book between the lectures; but for the lectures themselves there is no satisfactory substitute.

In your second year you will, in the Medical Department, continue the pursuit of anatomy, physiology, and physical diagnosis, advancing in chemistry to that portion of the course which is concerned more directly with the problems met with in medical practice, and will enter upon the study of morbid anatomy, therapeutics, theory and practice of medicine, surgery, and obstetrics.

Morbid anatomy is a subject of paramount importance to both physician and surgeon; without a knowledge of the changes wrought by disease in the organs and tissues of the body, it must obviously be impossible to recognize their existence, and any attempt to arrest their progress by treatment must be like fighting an unknown enemy in the dark. Accurate diagnosis can only be based upon pathological experience, and therapeutics without diagnosis must be the baldest empiricism. And here let me repeat the warning which I have given to first-course students as to neglect of studies which seem less urgent because not immediately subjects of examination; two years afford little enough time for the study of morbid anatomy, and every moment devoted to this important branch in your curriculum should be zealously utilized. It is hard to say which is the more valuable in itself, a familiarity with the appearances presented by diseased structures to the naked eye, or an acquaintance with their minute changes as revealed by the microscope. For the practical physician or surgeon, I would give the preference to the former, as more constantly and immediately called for; since careful microscopic study, of a tumor for instance, requires considerable time, and can under ordinary circumstances be delegated to an expert; hence, while assuredly not neglecting the microscope, with the practical use of which in pathological study each one of you should endeavor to become thoroughly familiar, I would specially urge you to lose no opportunity of being present at and assisting in post-mortem examinations, and of learning to recognize by the unaided vision the various forms of morbid growth and the lesions caused by morbid processes generally. And I must give you one other caution: your pathological and particularly your microscopical knowledge must always be guarded, and if necessary corrected, by clinical experience; a Rokitansky or a Virchow would tell you that in a given case there were such and such appearances, and that these were the appearances ordinarily met with in such or such disease, and would add no more; it is only the youthful pathologist who will condemn a patient to speedy death from cancer, because an excised mole or wart presents an arrangement of cells which

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is seen in epithelioma; or will announce a fatal Bright's disease, because he finds a little albumin or a few casts in the urine.

Another study of the highest importance in your second year's course will be therapeutics, which teaches the art of healing, as it were from the side of the remedy, and by showing you the physiological action of medicines, or the effects which they produce when administered in health, affords a rational basis for their use in the physician's struggle with disease. Here too, however, your therapeutic knowledge must be guarded and guided by the teachings of clinical experience; many maladies exercise a modifying influence on the patient's susceptibility to the effects of remedies; a man suffering from acute peritonitis can take with impunity, and may owe his life to, doses of opium which would almost certainly kill him if he was well, while on the other hand, in certain forms of renal degeneration, a very moderate dose may throw the patient into a profound sleep, from which he never will awake.

It is, therefore, wisely provided that, simultaneously with your beginning the study of morbid anatomy and therapeutics, you shall also receive instruction in the three great practical branches, medicine, surgery, and obstetrics,. In the practice of one or other of these will your future lives be spent, and it is essential that you should know enough of all to be able to acquit yourselves properly in the cases of emergency which every practitioner meets with. In the country, every medical man must engage in surgery and midwifery as well as in the practice of physic, and even in our large cities, though he may as a rule decline surgical or obstetrical cases, yet he cannot, if a conscientious physician, refuse his aid in the presence of a man dying from sudden hemorrhage, or of a woman in the actual throes of labor, when prompt and intelligent assistance may be essential for the saving of life. Very properly, therefore, are our students required to personally treat both medical and surgical patients in the hospital ward-classes, while none are allowed to graduate without having attended at least one case of obstetrics.

These same branches, with the addition of personal clinical instruction and lectures on gynecology and the more important specialties, will continue to occupy your attention during your third year of study, and if you shall have followed the plan which I have advised, of taking full notes during your second year of those lectures which admit of note taking, and watching closely the demonstrations of your teachers, you will then find your task much simplified, and will be able to complement and supplement the knowledge which you will already have acquired, with comparatively little exertion.

Throughout your course you will, I am sure, find great advantage from the periodical, usually weekly, examinations on your studies, which are conducted in connection with the lectures on the various branches by well qualified instructors, and which are known under the name, peculiar to American schools, of "Quizzes." It is often the case that a student who is perhaps naturally somewhat less quick than his fellows, or who has not in his course of preparatory study satisfactorily acquired the art of note taking, will find that he is able to learn as much if not more from a good "quiz" than he can from the lectures, which are necessarily so planned as to be adapted to the needs of the majority;

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but even the best student will derive great benefit and comfort from these exercises, by being able through their aid to compare his own progress with that of his fellow students, to orient himself, as it were, in the maze of scientific acquirement, and, finding that his advance so far has been satisfactory, gain courage to press on boldly to the conflict which yet remains. By all means should every student who can possibly do so take a thorough "quiz" on each branch on which he is that year to be examined, and still better, if practicable, on every branch included in the year's curriculum.

Let me say one word to you on the subject of examinations: they are not such dreadful things as they are painted, and, speaking for my own branch as well as of the examinations of my colleagues, as far as I know their scope and range, there is no reason that any student should fail to pass them, though unfortunately some do. No student of fair average ability, who is blessed with health and who has been attentive and industrious, need fear to meet his examiners, for he will find no difficulty in satisfying their just requirements. Of course from ill health, or from other unavoidable hindrances, a man may be obliged to neglect his studies—and it may, in some contingencies, be even his duty to do so—but such a one should not apply for examination, since the examiner's record must show simply the mark justly earned by the student's answers, and cannot reflect either esteem for general character or sympathy with misfortune. I have heard indeed of students being seized with a temporary aphasia, or even fainting away, in the presence of the examiner, but I have had no personal experiences of this nature. When a gentleman fails to pass the examination in surgery, it is simply because his knowledge of surgery is insufficient.

And, now, perhaps, some of you may think that I have had a great deal to say about your work, and may ask, "what has he to tell us about rest and recreation?" Rest, certainly: even a machine, we are told, works better with rest at proper intervals, and for the human being, as for the lower animals, periodic rest is essential to full activity; and as for recreation in its true sense—the re-creation which enables the man to return to his work with renewed vigor and energy—that can best be got through rest, and through the change of thought and occupation which can most conveniently be obtained for the mind while the body is resting; but as for systematic holiday making and pleasure seeking, right and proper enough in their own time, I respectfully submit that their time is is not during the winter session of a medical college. You must school yourselves to sit still in the lecture room, and concentrate your minds on your studies, even though you hear from the athletic grounds the shout of the triumphant football player, or are startled by the cheerful college yell of the young gentlemen on the other side of the campus.

As regards rest, I would strongly urge every student to make a point of obtaining regularly seven or eight hours of uninterrupted sleep, and not to wait to begin his night until the early hours of the morning. I confess, indeed, to a strong sympathy with the student of any age who trims the midnight lamp in the pursuit of learning and in high thinking, but it is wise not to do this while you are studying medicine. Remember that the chemical lecture and the

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morbid anatomy demonstration come at 9 A.M., and make your post-meridian hour for retiring correspondingly early. Then I would make it a rule, without any exception, to do no studying on Sundays. Our friends among the theologians who advocate who is called the "higher criticism," have, I believe, still left us the Ten Commandments; and obedience to the fourth precept of the decalogue is not only as obligatory now in a moral point of view as it was when Moses descended Sinai's Mount, but it is also as important from a mere worldly standpoint, in the preservation of health and in enabling the individual to accomplish the best work with the least impairment of his natural powers. With a good night's rest after each day's toil, and with the Sabbath day kept holy, none need fear overwork; it is those who burn their candle at both ends who are threatened with premature darkness.

A young man coming for the first time from the country to a large city like Philadelphia, finds many things very strange, and is undoubtedly exposed to great temptations. To such let me give one word of affectionate counsel: Go into no company in which you would not be willing to meet the old father who is at home praying for you; have no associates whom you would think unfit to present to your dear mother or sister.

But if a great city offers great temptations, it also affords great privileges to those who dwell in it; with its great libraries, its great museums, its art galleries, and its numerous churches, where every one may worship God after the manner of his fathers, it provides for the intellectual and spiritual needs of its inhabitants with a generosity which no rural district can hope to emulate. Beside the rapidly growing library of our own University, to which students have free access, our city contains the old Philadelphia Library of Franklin, with its splendid Ridgway Branch, founded and endowed by an alumnus of our school, Dr. James Rush; the large Mercantile Library; and, more especially interesting to our profession, the Library of the College of Physicians, second only in wealth of medical literature to the great National Library at Washington; the Library of the Academy of Natural Sciences; the Libraries of the Historical Society and American Philosophical Society, and many smaller collections. The Wistar and Horner Museum, now in Medical Hall, but for which a new building is being erected through the generosity of a descendant of its illustrious founder, is unequaled in its special department by any collection in this country; but beside this, Philadelphia offers to the student the use of the Mütter Museum of the College of Physicians, the splendid Museum of the Academy of Natural Sciences, and many others. During the winter season you will not have many hours to spend in these libraries and museums, but those of you who can prolong your stay in the city after the termination of the session, may with great advantage devote a portion of your leisure to the examination of their scientific and intellectual stores. Another educational facility afforded by a large city is the opportunity of attending the meetings of learned societies, where you may hear the burning questions of the day in all departments of knowledge discussed by the leaders of thought in the community; and here let me urge you, if practicable, to become members of one of the undergraduate societies connected with our own school. I know of no-

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way in which a medical student can better prepare himself for becoming ultimately a teacher than by taking an active part in the scientific proceedings of the Stillé or the Agnew Society, or one of their younger sisters.

And now, gentlemen, I have detained you, perhaps, already too long, and the time has come for me to close. To your hands will be committed in the coming years the honor and good name of our venerable school; see to it that its fair shield receives no tarnish while in your guardianship. Let the memory of the great men who have gone before you—Morgan and Shippen and Kuhn, Rush and Chapman and Wood, Wistar and Physick and Gibson, Jackson and Hodge and Carson, and those who have so lately gone from us that we cannot yet speak their names without emotion, Leidy and Agnew—let the memory of these be your talisman to keep you from any derogation in thought, word or deed, from their high example; and may each one of you, when his end comes, merit the encomium—the highest that can be paid to any mortal—He loved and feared his GOD, and served well his fellowmen.

THE EMPLOYMENT OF THE SYRINGE IN AURAL PRACTICE.[1]

BY B. ALEXANDER RANDALL, A.M., M.D.,
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University of Pennsylvania.

I BRING before you four cases illustrating different phases of the use of one of our most valuable otological procedures—syringing. Not a little has been said by some writers as to the drawbacks of the measure, yet we must all often yield ourselves with Buck to "the sloppy thraldom of the syringe."

It is far from being a panacea—the day is long past when the only curable deafness was that relieved by the syringe; its applications, though numerous, are limited in number and value. But of this you can better judge as we proceed to the study and treatment of our cases.

This man comes with the complaint of sudden deafness, occurring in the night without pain, not associated with cold-taking or any known cause, and with only slight tinnitus or vertigo. Deaf as he is to the voice or to the tuning-fork sounding before his ear, he hears it readily, almost painfully, when resting upon any part of the head. Bone conduction, then, is not only retained, proving the nervous apparatus intact, but seems distinctly exaggerated—a point that must be remembered in testing such cases, since a loudly resounding tuning-fork touched to the head of a susceptible patient may affect him most disagreeably and almost knock him down. Labyrinthine lesion as a cause of his sudden deafness is excluded, then, by our result with the fork;

[1] A clinical lecture delivered at the University of Pennsylvania.

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middle ear deafness could hardly reach this point suddenly without pain; and we can logically expect to find that we have to deal with a case of impaction of a cerumen mass in the external canal of each side. A glance into each ear, under almost any illumination, reveals a blackish brown mass filling it nearly out to the tragus. This we will now proceed to remove from each canal by syringing; but to succeed we must proceed judiciously. Simple a measure as it is, there are many ways of doing it wrongly and inefficiently. Not every one can syringe an ear, and there are details of great importance to success in each case. First, as to the syringe—almost any form will serve; but it must not be too puny, as we may have to throw the stream with force. A smoothly working piston syringe is generally best. It must be gently used at first; so

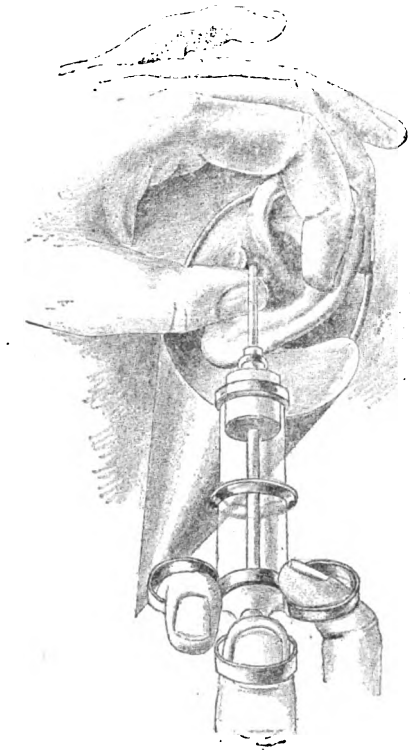

FIG. 1.

any starting with a jerk is to be avoided. It may be of almost any size or material, but extremes are to be avoided in each direction. A capacity of from four to twenty drachms is perhaps best; my own, you see, is at the lower limit. Its tip should be slender, long and small, so that it can at need be passed deeply into the canal, giving a small but powerful stream, yet not interfering with illumination or observation. Various safety tips are made to be used if the instrument must be confided to unskilful or careless hands; but that does not now concern us, as such hands have no business with such a case as this.

The fluid is very important, not as regards it chemical constitution, but as to its temperature. It is very doubtful if any addition to the fluid materially in-

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creases its efficacy as a solvent of cerumen; but the tepid water often recommended is decidedly inferior to water of about 110° F. or 44° C. Not only will fluid of this temperature more readily remove the wax mass, it will also be much better borne and enable us to avoid one of the most awkward accidents to which we are liable—viz., the dizziness or faintness of our patient under the manipulation. Our object is attained in this form of syringing, by the penetration of the fluid beyond the obstructing mass and washing it out by the pressure from behind. This pressure, which must be as great upon the drum-membrane as upon the obstruction, need not be so high nor so annoying if the water be hot. The syringe itself is apt to be cold, and will need to be refilled several times, in order to take off the chill. The fluid, unless abundant, is apt to lose its heat rapidly, and the ear will often become habituated and bear increasingly hot fluid; so it is well to have some very hot water and add it as required to that which you are using. Another important appliance is the cup which is to catch the emerging water. Almost anything will do at need, yet I have for many years used with much satisfaction this little conical cup which hangs upon the ear, neither itself in the way nor calling for any inconvenient hand to hold it in place. It may at once be objected that its capacity is too small—that it will have to be emptied too often. This will depend, in most cases, upon whether the syringe is rightly used; and to this cardinal matter we will now proceed. Placing a towel over the patient's neck and shoulder, sitting beside him with the forehead mirror illuminating his meatus, I place the catch-cup in position, fill the syringe from the adjacent vessel with water as hot as my own hand can bear, grasp the helix between my index and second fingers to draw it well out, up and back, press the tragus forward with my thumb, and then, resting the syringe-tip upon this thumb, I gently empty the syringe into his canal (see Fig. 1). At the start the water is only allowed to trickle in, but the force is augmented as the instrument is emptied, and with each succeeding syringeful, and an entrance is sought for the fluid between the mass and the wall. Up and back is theoretically the best portion of the wall along which to throw the stream, since passage is generally most readily gained here and the stream exercises a less direct impact upon the drum-head. The preliminary instillation of oil, glycerine or saponifying solutions is rarely of any value, while none of them are harmless. In most cases the cerumen can be wholly removed at one sitting without any such measures, though I have met instances of cerumen casts as black and hard as coal, which resisted all attempts at removal for several days. The case before us is, fortunately, not of this class. The first syringeful of water returned discolored, the second brought flakes, and a half-dozen more brought the bulk of the plug, as a solid mass, to the orifice. The drum-head is now visible, showing only a little injection and retraction, the latter a frequent condition in these cases, pointing to chronic trouble in the middle ear. This may be slight and seemingly unimportant, and the patient may regard any further solicitude on your part as superfluous; but it should direct your attention in every case to the naso-pharynx as the starting point of trouble and to the other ear (in spite, perhaps, of the patient's protests as to its perfect soundness), as it is almost always a fellow sufferer. The cerumen has

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now been removed from both canals, the water which did not drain away has been soaked up with absorbent cotton, the excoriated area which we find on the back wall of one side is dusted lightly with boric powder, and the depressed drum-membranes are inflated by the Politzer bag, after cleansing of the naso-pharynx by spraying and mopping, and he will be directed to return in four days, if only to report the completeness of the relief which he has experienced. Bear in mind, gentlemen, that one-seventh of aural practice, as a rule, is made up of these cases, and the importance of their mastery at once appears.

The next case which I bring to your attention is widely different. This little girl has had suppuration of the right ear continuously since scarlet fever six months ago; and the left ear, which was then equally involved, has been only a little less constantly discharging. Examination shows only scanty thick discharge on the left, with a large central perforation, into which the tip of the malleus handle projects. On the right the canal is full of pus which is stringy with mucus admixture, and suggests that we have an obstinate condition to deal with. Here we will again employ the syringe with hot water, first because it removes the clinging strings of mucus more readily and gently than any other means, then because its fluid penetrates in some directions where other means can hardly reach; and thirdly, because it enables us to apply heat as a stimulant and astringent at the same time that we are cleansing. Soaking out the remaining water with absorbent cotton, we find that the destruction of the drum-membrane on the right is nearly total, that no sign of ossicles is visible, and that there is a rough granular condition of the inner wall of the tympanum. Above, at the margin of the annulus, is an excoriated area, and the cotton-carrier used as a probe reveals rough, bare bone, upon which the cotton fibres catch audibly. The nares are in a condition corresponding to this ear full of muco-pus, which is said to be fetid at times; the mucus membrane is hypertrophied and congested when revealed by spraying away the discharge; the tonsils are enlarged; the back wall of the pharynx is granular and thickened; and the breath is heavy with the results of putrification of the secretions of the mouth, tonsils and naso-pharynx. Spraying through the anterior nares has practically syringed partially clean the naso-pharynx and the curved cotton-holder carried up behind the velum serves to convey some glycerole of tannin to the over-secreting surfaces and mechanically to cleanse further the region of the Eustachian tube mouths, from one of which I seem to have drawn down this string of mucus which clings to my cotton.

Now, with the upper air passages moderately clean, we can use the Politzer inflation, and the sound of the air escaping through each tympanum is loud enough to reach the ears of all in the room. The râles which you heard are at once explained by the presence of a bubble-filled drop of mucus in this right ear, which we will remove with another syringeful of water, used now a little hotter than before, and with peroxide of hydrogen added as a disinfectant; and we can now dry the canal, dust very lightly with boric powder and close the exit with a flake of cotton. At home we will have the hot douching repeated if the cotton is moistened with the discharge, cleansing being the prime measure in such a case. The little rubber bulb, with a soft nozzle, (see Fig. 2)

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forms about the nicest instrument for such uses; the canal to be dried, of course, after syringing, and the flake of cotton renewed. She must return daily, at first, until we have obtained some control of the probably obstinate condition.

In this third case our use of the syringe is contrary to the teaching of some authorities. We have here a child who has been suffering with a "grippe" attack, complicated by severe earache of the left side. We examine first the unaffected ear—an excellent plan, not only to avoid forgetting it, but to get a criterion, if it be normal, by which to judge of the other ear. It breaks the ice with the patient also, and finding that your examination of the one ear gives little or no discomfort, he will be the more ready to submit the inflamed and probably sensitive ear. As was to be expected, this ear has not wholly escaped the influence of the coryza, but shows only slight dulling of its lustre and congestion of the vessels along the malleus handle. Turning to the other ear, we note the flinching at any movement of the auricle, which tells of the inflammation within; and, closing the opposite ear with a finger-tip, you see that our questions, which were heard in the lowest tone on the right, have to be spoken loudly to secure comprehension. This method of testing is often far superior to more formal measures with the watch and other appliances, since it cannot be deceptively answered when not really heard. Inspection of the canal shows a little congestion of its deeper part, and the drumhead is seen congested and distended by secretion, which causes the upper posterior portion to bag downward. The coloration of the distended portion does not suggest pus, and after cleansing the naso-pharynx by spray through the nose, touching the pharynx vault above the velum with a glycerole of tannin, so as to both sweep clear this tract and to apply an astringent to it, we can *gently* use the Politzer inflation. This gentleness is essential at the start, lest the pressure within the tympanum be raised to a very painful pitch. The air passes, as you see clearly indicated by the involuntary movement of the child's hand to the ear; and the tears which we elicit are due partly to the surprise and shock but principally to the increased pain. Now, the syringe, with hot water, comes in for a double purpose. A few applications will allay the pain, while the heat will act as a stimulant and astringent, narrowing the distended vessels, quickening the impeded circulation and initiating that resolution without suppuration which we hope to obtain in the case. Gentle, hot douching will be continued at home.

FIG. 2.

Those who use tepid instead of hot water rightly say that syringing is disadvantageous in these cases; and the man who powerfully inflates such an ear with the Politzer bag naturally finds that the patient feels, and probably is, the worse for it; but judiciously employed, both measures are rational and beneficial for these acute inflammations as well as for the more chronic.

This fourth case is one belonging more exclusively to the specialist, perhaps; but I wish to insist that the difficulties of diagnosis and of commonly successful treatment are not at all beyond the general practitioner who approaches these things rationally. The man gives a history of repeated

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"gatherings" in his left ear, with pain, ringing and variable deafness, with occasional vertigo, relieved generally by a "bursting," followed by a little discharge for a few days. These attacks are often independent of any cold-taking or any known cause. Examination shows the meatus apparently dry and clean at present, with a nearly normal drum-membrane; but closer study reveals a brown, cerumen-like flake on the upper anterior wall, where it might easily be overlooked or passed over as insignificant. Instead of syringing it away, as would be your best treatment, I will lift its edge loose with the probe and draw it away with the forceps, in order to demonstrate to you that it is a leathery crust of dried discharge, the under surface of which shows a bead of fluid pus. Corresponding with this, we can now see a small, almost pin-hole opening just above the short process of the malleus in the red flaccid membrane. The case is one of suppuration of the attic or upper drum-cavity; and the same anatomical obstructions which isolate the process from the rest of the tympanum serve to limit greatly the efficacy of ordinary methods of treatment. Cleansing his naso-pharynx and inflating, we find that no perforation-sound is produced and the no secretion blown out; and when he holds his nose and blows, we can see that air distends the drum-head below, but does not affect the upper perforated portion.

A fine pledget on the cotton-carrier can be passed into the opening, and, as it comes away, moistened by a little fetid pus, it catches upon rough, bare bone on the Rivinian margin. Arming my syringe with a long, fine canula, such as is used for the lachrymal duct, I can enter its tip into the perforation and inject the tympanic attic with a dozen or two drops of hot peroxide of hydrogen solution. This causes decided dizziness and some pain, both from the pressure of the injection and the frothing of the medicament. Such intra-tympanic syringing requires good judgment and a steady, skillful hand, such as no beginner is likely to have; it must be done under perfect illumination and with a convenient instrument—an eye-dropper drawn out to a long point answering excellently. But the skill which every careful man can soon acquire by doing with gentle, painstaking persistence the easier manipulations of aural work will serve here. If you have not already acquired that, use your hot syringing in the canal, and by pressure with the finger-tip or the Politzer-bag on the fluid filling the canal, you can force some of it into the minute perforation. Mopping with the moist and the dry pledgets also serve to cleanse and to stimulate the diseased surfaces; and if the Boric insufflation does not seem to enter, it is easy to push some of the powder from the outside into the suppurating cavity. If the caries be extensive, such measures may fail; and surgical removal of the necrotic tissues by excision of the drum-membrane and ossicles may be called for; but that belongs to the specialist and is justifiable only after these simpler and often efficient measures have been well and faithfully tried. In the hands of any one of you the syringe can remove the collected secretions from before the perforation, carry a little medicated fluid into the suppurating cavity and in a considerable proportion, even of the carious cases, secure an early and lasting cure.

In conclusion, I may justly claim that the syringe will prove of great value to you in more than half of the aural cases which you meet. It will be the best

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instrument—generally the only proper one—for you to employ in the removal of cerumen masses or the rarer foreign bodies; it is your best means of cleansing in many suppurating cases, and as a means of directly and efficiently applying heat to acutely-inflamed conditions it has no superior. But you must remember that this is not true of the hap-hazard way in which it is generally employed by lay hands and far too often by medical hands too. It must be used carefully and intelligently—a proper instrument with fluid of proper temperature, and with the eyes aiding the hands to the efficient utilization of the valuable services which it can afford.

GRANULAR CONJUNCTIVITIS.[1]

By James Wallace, M.D.,
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Under the term granular lids is grouped a number of diseases of the conjunctiva which differ from each other both in cause and manifestation. The ambiguity which surrounds the description of the disease, is indisputable evidence of the insufficiency of our knowledge and skill in diagnosis. With this disease are confounded, (1), gonorrheal ophthalmia, a violently acute disease which runs its course in from four to eight weeks, and either destroys the eye or leaves it entirely well as far as the conjunctiva is concerned; (2), follicular conjunctivitis, a disease of the conjunctiva which holds such a middle position, that it is considered as belonging to either granular conjunctivitis or to be independent of it; (3), phlyctenular conjunctivitis, which is characterized by the appearance of discrete vesicles over the conjunctiva and cornea; (4), catarrhal conjunctivitis, which probably is the most difficult to differentiate from granular conjunctivitis; it has in its different grades qualities which resemble simple conjunctivitis or a specific one, according to the length of time it has existed. To all these conditions the common symptoms of smarting and burning of the lids and hypersecretion may be added. These are usually the ones of which the patient complains, and on them the diagnosis is often framed. The most experienced observers confess that at times a differentiation between granular conjunctivitis and simple conjunctivitis is impossible. Ultimately the case becomes clear enough when the disease refuses to yield to any remedy, and lasts for months and years. The disease, "granular conjunctivitis," is known under the names of Egyptian ophthalmia, military ophthalmia and trachoma. It was called Egyptian ophthalmia when the French and English soldiers were attacked with it in Egypt.[2] The older surgeons described granular conjunctivitis as a distinct disease from Egyptian ophthalmia.

[1] Read before the Lancaster County Medical Society.
[2] Lawrence, pages 232 and 233.

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Dr. Vetch informs us, in his interesting "Account of the Ophthalmia which has appeared in England since the return of the British Army from Egypt" (p. 69), that "the total strength of the second battalion of the Fifty-second was somewhat above seven hundred men; six hundred and thirty-six cases of ophthalmia, including relapses, were admitted into the hospital from August, 1805, when the disease commenced, till the same month in 1806; of these fifty were dismissed with the loss of both eyes, and forty with the loss of one."[1]

The ophthalmia depôt, under the charge of this able physician, contained in the summer of 1808, upwards of nine hundred cases from more than forty different corps. Cases of purulent ophthalmia had occurred in the first battalion of the Fifty second when it went to Sicily in 1806. It continued to suffer there. A part of the army of Sicily, which had been detached to Egypt, brought back with it fresh infection. From this station more than one hundred and thirty men were sent home totally blind.

"It appears from the returns of Chelsea and Kilmainham Hospitals, that 2317 soldiers were, on the 1st of December, 1810, a burden upon the public from blindness in consequence of ophthalmia.[2] The soldiers who have lost one eye are not included in the number above stated.

In 1804, within nine months, from April to December inclusive, nearly four hundred cases of purulent ophthalmia occurred at the Royal Military Asylum; and from that time to the end of 1810, upwards of nine hundred additional cases had taken place in the same establishment, not including relapses.

Some years ago this alarming complaint broke out in a large boy's school in Yorkshire. Blindness of one or both eyes, or serious injury to sight from corneal opacities or other causes, took place in nearly twenty instances. We cannot suppose that the proportion of unfavorable results would have been so considerable if proper treatment had been adopted; for, in the Military Asylum, where the cases were so numerous, only six lost the sight of both eyes and twelve the sight of one eye.

Fifteen hundred cases occurred in the garrison of Ancona in 1812; in ninety-seven of these one eye was lost, in forty-nine both.

Müller treated 1,604 cases, including two hundred relapses, in the Prussian garrison of Mentz, in three years and a half; 1,344 were restored to the service perfectly well; fifteen became blind in both eyes, ten by staphyloma, three by entire suppuration of the cornea, one by leucoma, one by dropsy of the globe. Eighteen remained with impaired vision of both eyes, six by leucoma, four by cicatrix of the cornea with synechia anterior, six by suppuration of the cornea and opacities, one by pannus. Twenty-six remained blind of one eye, fifteen by staphyloma, one by cicatrix of the cornea with synechia anterior, nine by opacities, one by pterygium.

It has been asserted that 30,000 cases occurred in the Prussian army from 1813 to 1821, and that blindness followed in 1,100.

In the Belgian army the disease appeared in 1814, but was restricted until

[1] Lawrence, loc. cit.

[2] Ibid.

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1830, when it spread very generally, affecting, indeed, one-eighth of the whole army, and in some regiments half of the soldiers. In 1840 there were 5,000 cases in the army, which consisted of 50,000 men, and upwards of 100,000 cases had occurred since the first appearance of the disease.

Cohn[1] states that although the opinion prevailed that the disease was first brought to Europe in the beginning of this century, by Napoleon's army, yet strict historical investigations show that the disease had long been known in Europe. Arlt has cited a passage from Celsus which demonstrates that the old Romans knew the disease and treated the roughness of the lids by making incisions into them or rubbing them with fig leaves. The later literature contains little concerning the disease, although Arlt relates an epidemic of trachoma which raged among the soldiers. Cohn further states, "Egypt may well be the home of the disease, as this disease according to Hirschberg, appears in the papyrus of Ebers, which was written 1500 years before Christ." In any case, however, the attention of surgeons was first directed to trachoma seriously, on the return of Napoleon from Egypt, in July, 1798. And as the English army landed in Abukir in 1800, there broke out among the troops such an uncommonly severe inflammation that, as Larrey relates, the entire French army of 32,000 men, and almost all the English troops were attacked. Such an appearance had never been observed in standing armies until that time, and was therefore connected with the Egyptian ophthalmia.

Although after the return of the French to Europe in 1801, this body of troops was incorporated with the great Franco-Italian army, and the French army until 1816 came in contact, in various ways, with almost all other European armies in some remarkable manner, the French army remained free from an epidemic, while the armies of all the other lands of Europe were visited by a severe epidemic of granular lids. The disease thus became a veritable scourge in the Italian, Austrian, Prussian, Russian, Hollandish, Belgian and English armies. The surgeons of the English army first called attention to the granulations which appear in trachoma. The disease thus described is called Egyptian ophthalmia, yet we may not assume that the disease brought out of Egypt corresponds to the granular conjunctivitis of to-day. As Saemisch supposes there are various diseases of the conjunctiva included in the class, certainly far more dangerous forms than we have to-day, since in no other way the amount and rapidity of the blindness can be explained. The rapid destruction of the cornea points, as Hirschberg justly assumes, that in many cases the disease was gonorrheal ophthalmia. Cohn still further states, "almost with certainty may I assert of the notorious epidemic, which broke out in the year 1819, on the French slave ship Rodeur, and which is so accurately described by Mackenzie, that one can only see before him the clinical features of gonorrheal ophthalmia. The ship had twenty-two sailors and 160 slaves on board, the slaves had been taken from Bonny, in Africa, where none of the inhabitants were affected with eye disease. They were confined in the ship's hold under the most miserable conditions. The ship had been fifteen days under sail when suddenly the fearful disease broke out among the negroes. As they were brought

[1] "Lehrbuch der Hygiene des Auges."

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up on deck to get the fresh air, many of them from pain and terror jumped overboard. Soon after a sailor was attacked; three days after this the captain and the entire crew to one man were so severely affected, that only with the greatest difficulty could the ship, after eight weeks, be brought to Guadeloupe. There remained blind thirty-nine negroes, eleven sailors, and the ship's surgeon; of those who lost one eye there were twelve negroes, the captain and four sailors; of the remainder fourteen negroes and four sailors had spots on the cornea. Knapp and Burnett in 1881, and Baldwin in 1884, report that the negroes under otherwise favorable conditions are not susceptible to granular conjunctivitis." The most plausible explanation of this epidemic would be that some one of the sailors affected with gonorrhea infected the female slaves, and that the disease soon spread to the others, either directly or secondarily involving the eye.

Cohn states in his hygiene of the eyes: "More favorable are the conditions in the Prussian army, in which in every respect the excellent statistical sanitary reports which have appeared since 1873 every two or three years, particular diligence has been employed on granular lids. I came through comparison of these to the very remarkable results that the disease during 1873 and 1874 amounted to 6.9 per cent., 1874 to 1878 6.1 per cent., 1878–1879 5.6 per cent, 1879–1881 5.6 per cent., 1881–1882 4.4 per cent., 1883–1884 3.9 per cent., 1884–1888 only 2.6 per cent. Thus in fifteen years it had been reduced to almost one-third, a proof of what it is possible to effect by strict prophylaxis. During 1874, 128 men as invalids through trachoma were discharged, the number in 1884 amounted to seventeen, 8 per cent of the number treated; most of the cases were annually observed in the September examination, partly because the reserve corps brought the disease out of their homes, partly because during the review (as I suspect on account of the want of proper washing utensils and towels) many soldiers were attacked; the relation of the number attacked in September to that in March was almost annually as 8 : 3. Many interesting facts are to be found in the above mentioned very exact sanitary reports. In the portion of Roumania which borders on Bukowina, granular conjunctivitis is particularly widespread among the Jews. Crainicean in Jassye had, in 2176, patients who visited his clinic, 1139 cases of granular conjunctivitis, purulent cases as well as chronic cases, even a one year old child showed the most distinct granulations. Since the middle of this century reports have been published of epidemics of trachoma in jails, orphan asylums, barracks and other places where numbers of people live.

Among 111 children I found eighty-four children affected. All of these slept in the institute; on the contrary, there were none of the children affected who came as daily attendants to the school, although they attended the school daily for hours at a time. While of the children who lived there, from six to eight children had used a common wash bowl and towel, and apparently spread the disease through them. The epidemic was moreover very stubborn. The healthy children were sent to their homes; out of the deaf and dumb institute was made an asylum for the eye disease, and only in February, 1868, was the instruction again opened to the healthy children after the entire house had been disinfected. Only after two years was the last case cured. Since then

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no epidemic has come to the institute. My last examination, in 1891, gave no case of granular lids among the 286 deaf and dumb, and only four cases of phlyctenular conjunctivitis.

In 1877 a rumor of an epidemic of granular lids led to the appointment of a commission to examine the children of a school. Förster proposed four classes: (1) Simple catarrh without granulations; (2) Follicular catarrh without severe inflammation; (3) Follicular catarrh with severe inflammation; (4) Genuine trachoma.

Cohn examined 5,000 children in the school and found slight catarrh among 378; slight follicular catarrh in 270; severe follicular catarrh in twenty-eight and trachoma in only twenty-two. In the East the disease seems also to be prevalent. Reich found in two Armenian schools in 1878, among 371 children, sixty-seven per cent. of the girls and seventy-three per cent. of the boys affected with eye disease. Of this number thirty per cent. of the girls and twenty per cent. of the boys had granular lids. Hirschberg saw in the year 1889 in Asuan, in Egypt, all of the Koptic children of an American mission school, and in Cairo all of the twenty-six children of a lower school with diseased eyes; almost all had granulations; some had one eye blind. In the best boys' school in Cairo, which was only visited by cleanly dressed children out of good families, he found among thirty-two pupils from eight to ten years of age, twenty-six with chronic trachoma, most of them without annoyance; some, however, with distinct redness; four were doubtful and only two sound. They were the children of a physician and of the Bey.

Contagiousness of the Disease.—This disease is considered by most authors to be decidedly contagious; some, however, hold a contrary opinion. From Cohn we learn that in 1877 he called attention to the fact that, (1) of twenty-two soldiers with genuine trachoma only two had the disease in only one eye; (2) that the schoolmates of the trachomatous children were not attacked; and (3) that in four cases the brothers and sisters of the patients were fonnd in the same or another school to be suffering from granular conjunctivitis. An infection through the air does not seem probable. Venneman, in Loewen, had followed up for a number of years 100 cases of trachoma with regard to its infection of the family. These 100 persons stood in daily contact with 497 other persons; of these only forty were attacked, while the others remained free. In only twenty-eight families had the disease extended. In nineteen a second person was affected; in five, two other cases; and only in three families were there three other cases. Most conspicuous was the rarity with which the disease was communicated among married people. It occurred only seven times in fifty cases. Venneman assumes a peculiar tendency to the disease. In the year 1890 Lucanus, in the Marburger Clinic, collected the histories of thirty-three families in whom six, seven or more cases had occurred in the course of the year. Among 1,861 there were 527—almost one-third—in which several members of the same family were attacked. He also frequently found infection among married people. He assumed no peculiar tendency toward the disease, but justly remarked: "In the Hessian villages several children find place with the parents in the family bed. Brothers and sisters sleep together; several

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servants or apprentices sleep together; and the whole family, often also the servants, use the family towel. It is the custom in this locality for the whole family, from the grandmother down to the children, to use the same towel and often the same handkerchief, in case refinement has proceeded to this article—usually regarded as unnecessary."

Fuchs and Adamuk are of the opinion that trachoma is contagious; Arlt and Förster declare it to be non-contagious. In a school in Koberwitz, among forty-nine eye-patients, Förster saw twenty cases of trachoma, four of these belonged in the same family; and on investigation of the four remaining members of the family, three had trachoma. From this he concluded that the dwelling was the place of infection, and not the school-room. Sufficient evidence of the disease being conveyed from one individual to another, he thinks, is wanting; instead of this, it is usually found that the disease makes its appearance in secluded institutes. The circumstance that the disease is so frequently connected with the place, speaks against its contagious character. All distinctly contagious diseases propagate themselves from individual to individual, although often through the medium of other things. Regarding the contagious character of trachoma, Förster further states, that in his thirty-five years of active practice, he had never seen that physicians or nurses, who have daily intercourse with the patients, were ever infected.

(In the city of Philadelphia, in the past ten years, there have been three cases in which resident physicians have contracted the disease from patients.) More observations follow to the effect that the disease is due to dirt squalor, personal cleanliness not attended to.

I have quoted very freely from these eminent authorities as to the cause of trachoma. The evidence of each of these observers is to be given great respect as they are men of sound judgment, large experience and careful observation. The diversity of opinion, which is so strikingly manifest, leads to the supposition that these several men could not have the same disease in mind, or that the disease must vary with the individuals and localities. In regard to the contagious character of the disease, I may state, from my personal experience, that the large number of cases which I see in children, are contracted after their admission to orphan asylums, previous to their admission into the institutes their eyes had been perfectly sound. When I see a child at the hospital with granular lids, and ask which orphan asylum it has been brought up in, it is usual to receive the name of some asylum. On the other hand, cases are seen in which the disease has existed for years in one eye without ever affecting the other. A case in which the wife had severe granular conjunctivitis with profuse secretion without infecting her husband. Another case in which, after birth, the youngest child was affected with granular lids. The mother had no eye trouble previous to this, but at this time became affected; one other child was also affected, and three remained unaffected. Since writing this a similar case has occurred.

Most important in this direction are the utterances of Fuchs: "Does any connection exist between granular conjunctivitis and gonorrheal ophthalmia? These two diseases, which arise through infection, are in their typical forms

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certainly very different from each other. On the other hand, the chronic blenorrhea, which follows the acute affection, is so similar to papillary trachoma, that one cannot be distinguished from the other, either clinically or histologically. One could thus suppose that the acute blenorrhea produces, by contact in another eye, the same disease; and after passing into the chronic stage, the conveyance of purulent matter into the eyes of another, produces not an acute, but a chronic conjunctivitis, and this is trachoma. Different observations confirm the probability of this origin of trachoma. Goldzieher reports an epidemic of trachoma in a blind asylum in Buda Pesth, which was produced by the admission of a boy who had lost his eyes through acute blenorrhea. As a result of his admission, all of the males, and most of the females, were affected with trachoma. One could observe all forms of the disease, the purely papillary, simple follicular and mixed." Sattler reports the following case: "A mother, who suffered from leucorrhea, gave birth to a child who suffered from acute blenorrhea. Through infection from the child the mother was attacked with genuine trachoma. Since she lived in a neighborhood free from trachoma, infection from other sources was excluded. It has been said that blenorrhea never produces follicular enlargements of the conjunctiva."

Fuchs reports a case in which two girls contracted the disease; the first one infected herself from a leucorrheal discharge; the second was infected from the sister, somewhat milder in character. After the inflammation had subsided, there were follicular enlargements in the retrotarsal fold. Fuchs draws the following conclusion: "There is only one trachoma, which, however, appears under different forms. The cause of the disease is most probably the secretion from genital organs, infected with gonorrhea; this produces in the human eye acute blenorrhea, which passes into the chronic form, and from this is propagated by contagion granular lids. In support of this we may mention the frequency with which the disease is found in foundling asylums, orphan asylums and all other places where young children are congregated in numbers. Moreover, Cohn gives in his book the results of the bacteriological investigations of Koch and Gaffky, in Egypt, in 1883. The severe cases of trachoma contained the gonococcus of Neisser. This was confirmed in 1887 by Kartulis. In Germany, Michel, in 1885, and later, Von Sattler, found gonococci in granular conjunctivitis, and Kucharsky, in the Caucasus, in 1887, diplococci similar to those of blenorrhea."

(TO BE CONCLUDED.)

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THE BICYCLE IN ITS RELATION TO THE PHYSICIAN.

By Seneca Egbert, A.M., M.D.,
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The above title may seem incongruous to some, and doubtless there are many who have never given much thought to the relations existing between the medical man and the now popular wheel. The fact that the latter is so extensively used, not only as a means of recreation, but also by many for the purpose of more rapid progression, and in the transaction of their daily business, must give it some influence, for good or evil, upon the general health of the riders, and as such, our profession is bound to take cognizance of it. Though, still in the eyes of some, a mere fad, perhaps, even a nuisance, it is remarkable to what an extent the use of the wheel has reached. It is said that in this city there are upwards of twenty thousand wheelmen and wheelwomen, and that there are almost one hundred establishments in this country alone busily engaged in the manufacture of the machines in question, is evidence that the business is one of extreme proportions. Moreover, the effect that the League of American Wheelman, a body with over thirty thousand very active members, is exerting upon the improvement of the roads throughout the country, shows that they have considerable power and influence. And it is with a full recollection of Burdette's recent remarks upon prophesies and prophets, that I venture to assert that this extensive use of the bicycle is not a passing craze, that it has not reached its limit, and that it has come to stay; the use becoming more universal, as both the wheel itself and our streets and highways are improved, and as wrong notions and prejudices are eradicated from the popular mind.

Consequently, it is with the feeling that cycling is to have an increasing influence on public health, one way or the other, that, after a practical experience of several months, the writer ventures to note the various relations between the doctor and the silent steed. I say after a *practical* experience, because I have found that that decidedly modifies certain notions and theories that I, along with others unused to the riding, formerly had. And, though it is hard not to speak with enthusiasm of that which is really a delight, I shall try to put down the facts exactly as they are.

In the first place, as an exercise cycling is superior to most, if not all others, at our command. It takes one into the out-door air, is entirely under control, can be made as gentle or as vigorous as one desires; is active and not passive; takes the rider out of himself and the thoughts and cares of his daily work; developes his will, his attention, courage and independence, and makes pleasant what is otherwise often most irksome; moreover, the exercise is well and equally distributed over almost the whole body, and, as Parkes says, when all the muscles are exercised, no muscle is likely to be over-exercised. This general muscular exercise also has its direct effect upon the other and vital organs of the body, the heart, lungs and digestive organs especially; and the improvement in general health and digestion after a few weeks' riding, is by

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no means illusory or fleeting. We all know that the trouble with many of our patients is purely functional, and that their maladies have been brought on by lack of pure air, too little exercise and too much mental worry over their work or business. For these the bicycle furnishes an agreeable remedy.

Take a case of nervous or anemic dyspepsia, of hepatic or intestinal torpor; the increase in the flow of the blood current, the gentle vibration and the additional elimination of waste matters through lungs and skin, all results of a ride on the wheel, are just what we desire for the cure of our patient. Or with one of a tuberculous diathesis or with incipient phthisis, how much depends upon teaching him to breathe properly, *i.e.*, fully and deeply, and to spend much of his time in the open air. This, the bicycle will do for him, perforce. Cases, also, of neurasthenia, melancholia, and other nervous troubles, will derive much benefit from our present hobby, for, in addition to the above hygienic elements, the wheelman must develop—whether he will or not—his will, his independence and self-reliance, and the accurate control of all his muscles. Those of rheumatic tendencies, especially, will find that regular and systematic riding will do much to keep the disease in abeyance, and even to act as a cure. Someone has said that every muscle is a little heart, and, surely, no better means can be devised of eliminating deleterious waste matters from the whole system than the general and active use of all the muscles, voluntary and involuntary. In this connection, permit me to quote the testimony of Dr. W. G. Stables, formerly a prominent medical officer in the Royal British Navy. He says: "My rheumatism used to come on periodically and last for six weeks at a time, during which I could hardly stand on the floor, nor sleep in bed without feet and legs elevated. Since I adopted cycling as an exercise, and thus found pleasant means to keep my skin in working order, I have never had a single twinge of rheumatism. Cycling has banished my pains and lightened my mind, and made me, physically and mentally, double the individual I was." Of course, this is only an isolated case, but dozens of other erstwhile sufferers could give similar favorable evidence.

And it is just in these respects that the wheel is destined to be of great benefit to women. It gets them out of doors, gives them a form of exercise adapted to their needs, neither too violent nor too passive; one very pleasant withal that they may enjoy in company with others or alone, and one that does go to the root of their nervous troubles; for we are beginning to realize that these do not, for the most part, have their primal origin in woman's peculiar anatomy and physiology. Even the orthepædist may employ the wheel with benefit in certain cases, as by proper adjustment of the parts more or less work may be given to the limbs and muscles of either side. Other conditions might be cited, did space permit, wherein we might look for decided benefit from the proper use of our machine, but these will, I think, be sufficient to indicate that we have in it one of the therapeutic means for which some of us have long been looking. I might here note that in a recent and extended article on "Physical Education,"[1] Sir Frederick Treves speaks very highly of cycling as an exercise, and discusses at length its advantages and disadvantages.

[1] Treatise on Hygiene, Stevenson and Murphy, 1892.

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Unfortunately, he writes from the stand-point of one who has not had the personal experience, and I doubt whether that would really verify some of the things which he *thinks* are to be set down as objections to the exercise.

Of course, I have been presupposing in all my previous remarks that the rider will have a wheel adapted to his or her weight and strength, properly adjusted in all its parts, but especially in the relationship between the saddle and handle bar and pedals, and above all, that the rider takes pains to maintain a correct position and to do all he can to benefit his health and bodily development. In fact, I am confident that it is through neglect of some one of these important points that the evils attributed in justice to bicycle riding arise. There can be no question as to the erect posture being the correct one, and if this be maintained, cycling *does* "tend to develop the chest" by increasing the lung capacity, "and to exercise the muscles passing from the trunk to the upper limbs," Sir Frederick's opinion to the contrary notwithstanding. But if his "tall, lanky lad with a narrow chest and a stooping back," or any other person persists in maintaining a posture resembling a half-opened jack-knife, the faults and evils resulting therefrom cannot fairly be attributed to the use of the wheel. It requires muscular effort to sit erect, on a bicycle or elsewhere, and that effort means, as every one knows, the continued exercise of all the muscles of the back and neck. The arm muscles are brought strongly into play in hill climbing and whenever the speed is considerably increased, and the augmented depth and frequency of respiration that even a minimum of exercise induces makes a new demand upon all the chest muscles and the diaphragm.

On the other hand, an improper position, especially the one so commonly seen, not only does tend to cramp the chest and to interfere with the proper oxygenation of the blood, but by compressing the iliac vessels it also interferes with the flow of blood to and from the lower extremities, whose muscles are all being most actively exercised and therefore, most in need of an unimpeded current at this time. Certainly the gain of the few seconds per mile that this incorrect position is supposed to give, cannot in any measure compensate in ordinary riding for the physical harm it must induce. I am aware that other objections have also been urged against the use of the bicycle, and it will not be out of place to refer to what may seem to be the graver of them. Undoubtedly, the excessive use of the bicycle or tricycle by very young children is not advisable. Bad habits of position and carriage are only too readily acquired at this age, and there is danger of serious muscle strain and possibly nerve injury. Another fault is that parents too often purchase a machine too large for the child in order to save the expense of a new one the following year, the result being that both the weight and the power needed to propel it are in excess of the child's abilities. Moderate riding on a proper wheel need not, however, be forbidden. For older boys and girls there is probably not the same danger, though intelligent supervision is never harmful, and especially watchfulness for incipient harm is advisable with girls about the time of puberty. Even at this time the bicycle may do good by drawing a too studious or house-loving youth or maiden into the open air and active exercise, and the writer has in mind two cases, one fourteen, the other eighteen. where a decided increase in height, and especially in length of

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lower limb, can be fairly attributed, he thinks, to bicycle riding within the last year or two.

As for injurious results from pressure on the perineum, these seem to exist more in the minds of non riders than in the persons of the riders themselves, and there is but little if any evidence that such results occur. The bad position already condemned does bring undue pressure on the perineum and is an additional reason against it, but with a proper saddle and the erect position the weight really comes upon the tuberosities of the ischia, where it should. Treves says that cycling has caused no aggravation of the symptoms in numerous cases of hypertrophied prostate in his experience, and that cases of chronic constipation with hemorrhoids and functional disorders are benefited by it. Nor is there any evidence that varicose veins are caused by it, though this or any other vigorous exercise on the feet may not be advisable in cases of long standing. I also do not believe that there is any danger of hernia being induced in any way, though I should not advise any one suffering therefrom to do much riding. This, however, more on the grounds of caution than from any actual knowledge of danger to such cases. The vibration and jarring was formerly an unpleasant feature of the exercise, but improved roadways, spring frames and especially pneumatic tires have all combined to reduce these to a minimum, and to make them unnoticeable except to the very sensitive. It is possible that with one of the older machines on bad roads a woman with certain uterine displacements might feel the worse for riding, but for the majority of women who ride to-day the increased tone and quickened circulation in the pelvic viscera, together with the improvement in general health, will more than compensate for any discomfort on this score. I know one fair rider who has never yet experienced any distress comparable with what she suffers from the jarring of our city street cars.

Again, I am often asked whether the motion of bicycle riding is not the same as that of running a sewing machine, and whether the same evils may not arise from the former as from the latter. Not at all. Women, at least, sit erect on their wheels, and consequently the thigh never makes even a right angle with the trunk, and there is no stasis of blood in the lower limbs and genitalia. Moreover, the work itself makes her breathe in oceans of fresh air, and if she wears a corset at all it is a loose one that won't interfere with respiration. If she enjoys cycling at all, she cares more for comfort and health than she does for the fashions. As a contrast, the woman at the sewing-machine works indoors, probably in an ill-ventilated room, stoops over her work, contracting the chest and almost completely checking the flow of blood to and from the lower half of her body, while at the same time she is increasing the demand for it there; finally aggravating the whole trouble by the pressure of the lower edge of the corset against the abdomen, so that the customary congestions and displacements have good cause for their existence. One other objection has been advanced, and that is that the exercise of the lower limbs would so increase the size of the iliac and psoas muscles as to materially decrease the superior pelvic inlet; but these muscles are flexors of the thigh upon the trunk, and their action is almost wholly passive, since each limb is alternately flexed by the

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weight and power of the opposite one as it descends and gives the impulse to the wheel. Surely there would have to be an abnormal development of all those other muscles that are so actively engaged before these two should so increase in bulk as to be an obstacle in future parturition; nor will any one, on second thought, venture to assert that these two muscles of the whole body are not to be normally developed along with the others. Only a pelvis very narrow transversely could be an excuse for forbidding cycling on this ground.

Persons with organic heart disease, should either not ride at all, or do so with caution. Even those whose hearts are functionally weak should be careful, though the riding will, probably, benefit them by improving the general health and removing the cause of the disorder. Several deaths have occurred from heart failure, and there is, perhaps, a real danger that too great a strain may be thrown upon a faulty heart, especially by those unaware of their condition. Nor should patients with any other grave organic trouble attempt much hard or rapid riding, least it be too heavy a tax upon the already weakened part. Finally, the same objections exist in this, as in any other exercise against over-exertion, over-training or other unwise action. Like everything else, the ownership of a bicycle or the ability to ride it, does not guarantee the possession of brains by the subject.

Having thus considered, at some length, the influence of the bicycle upon the health of those who ride, it will not be out of place to say a word or two about its use by the doctor himself. To many physicians, in the earlier years of their practice especially, the cost and maintainance of a horse and carriage, is a serious burden and drain upon their financial resources. To these the bicycle is an efficient substitute for the more expensive outfit. It costs practically nothing for sustenance, room-rent or repairs; it is always ready at a moment's notice, with no dependence on the pleasure of the stable-boy or driver, and it can be ridden almost anywhere that one can drive. As I have already hinted, pneumatic tires have almost wholly removed the terrors of rough pavements and bad roads; but these latter are rapidly being improved, thanks to the efforts of the wheelmen who are awakening public interest all over the country in the deplorable condition of the highways. For night use in the city, where it is often impracticable or inadvisable for the doctor to use his horse, it especially recommends itself, and the saving of time by its use at any hour, is not inconsiderable. As we know, a few moments in times of emergency may mean a great deal to the patient. A recent case of the writer's comes to mind wherein the ten minutes that his wheel gained for him, in responding to the summons, meant the difference between life and death to the patient; so it seemed, at least, to the latter and his family. Contrary to the general opinion, it is easy to learn to ride, and there are few, indeed, that cannot master the whole problem in an hour. The additional knack of applying the power most effectually, and of moving with the greatest ease, will come within a day or so, while even sooner the balancing becomes automatic and requires no thought. The same effort that one employs in walking will carry him thrice or four times the distance on the wheel, and with far less fatigue, for the greater part of the weight is carried on the saddle, and not by the thighs and legs, which are

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doing the bulk of the work. A speed of eight or ten miles an hour is easily maintained; in the city one makes better progress than in the street cars or average carriage, and for the country practitioner, in a community blessed with good roads, I am confident that he would find that, for the greater part of the year, the bicycle would save time for him in more ways than one. Lastly, the wheel affords an agreeable means of recreation and relaxation to the busy physician, which he can take at a moment's notice, or even in the actual pursuit of his duties, and it gives him that active exercise in the open air, with only a minimum of fatigue, which too many of us need and too few of us get. The only practical objection that I know to many physicians employing the bicycle, is that it is not available in rainy weather; but, then, comparatively few of our days, from May to November, are of such a character. As to the exercise not being dignified, I believe that that depends altogether on the man who rides. It is well known that many physicians in Washington and Buffalo, two cities noted for their fine pavements, use the bicycle constantly in their practice without detriment to either their professional standing or dignity.

In conclusion, let me say that if a vein of enthusiasm does seem to run through the foregoing remarks, I have only tried to show what seems to me to be the true status of the "silent steed" in its relations to our art and profession.

THREE CASES OF UNUSUAL JOINT LESION.[1]

By B. E. McKenzie, B.A., M.D.,

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I. *Spontaneous Dislocation of the Hip.*—Mrs. J. T. R., aged 21, married, had one child two months ago. Her family history is unimportant. Her mother once lay for some time confined to bed because of some nervous trouble. On August 16, at midnight, Dr. Mennie was called to see the patient, and found her sitting on the side of the bed unable to get in. She complained of great pain down the back of the right thigh and leg and about the hip. She had not been lame previously, except that there was a noticeable limp on the 16th. She had for some time previously complained of pain in the shoulders, elbows, knees and fingers; some of the joints, especially those of the hand, were slightly swollen. Dr. Mennie had been treating her for rheumatism. No accident had occurred. She came upstairs herself and undressed to retire. The pain came on when she sat down on the side of the bed. Dr. Mennie found her very nervous and could not get her into the bed until he had administered chloroform. From the first the right femur assumed a position of flexion and

[1] Read at the Sixth Annual Meeting of the American Orthopedic Association, at the New York Academy of Medicine, September 20, 21 and 22, 1892.

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adduction. In a few days she was compelled to have a pillow under the knee. The leg became more flexed and more adducted during the weeks that followed. She lay in bed for two months, complaining much of pain in the groin over the adductors and over the great trochanter. She habitually sat in bed during this time bringing the right knee up nearly to the chin and having her hands clasped over the knee. During the month that had just elapsed previous to consultation she had been out of bed at times moving about by the aid of crutches. Upon examination, November 20, 1890, I found the right foot drawn up and its inner surface lying against the inner and anterior surfaces of the left tibia and the right heel about seven inches above the left. The femur was held at an angle of 145° and adducted 45°, so that the opening of the vulva was placed against the inside of the thigh, and the femoral crease was eczematous over a space two inches by six inches; the femur rotated inward. I gave chloroform, and the thigh was fully flexed, and upon movement the trochanter could be well outlined not much higher up than that of the left side, and the head of the femur could be distinctly felt behind and a little above its normal position. There was no swelling of the parts about the joint. It was evidently a case of dislocation of the head of the femur upon the dorsum ilii.

The knee being fully flexed, also the femur, abduction was made, rotation outward and complete extension, the left hand being kept behind the joint as a fulcrum. Some structure, apparently fibrous, was felt to give way, and the leg was brought down into nearly normal position. The obstacle to complete extension seemed to be the contraction of the flexors and adductors and the shortened intermuscular septum lying inward from the tensor vaginæ femoris. The limb was fixed in this position by a long side splint and the next day a Thomas' posterior hip splint was applied with a view to retaining the limb in this position. There was no elevation of temperature and no swelling or reaction because of the reduction of the dislocation.

The following are the measurements made with care at this time: Right calf, 8¼ inches; left calf, 8¾ inches; right knee, 11¼ inches; left knee, 11¼ inches; right thigh, 10¼ inches; left thigh, 10¾ inches (2 inches above patella); right thigh, 13¼ inches; left thigh, 13¾ inches (6 inches above patella); from right anterior superior spine to right internal malleolus, 30 inches; from left anterior superior spine to left internal malleolus, 30¼ inches; from umbilicus to right internal malleolus, 32½ inches; from umbilicus to left internal malleolus, 33 inches. Splint was removed early in January, 1891, the hip-joint being apparently anchylosed. She has remained constantly in bed and suffers no pain.

June, 1891, examination showed her lame, but walking without aid. Her general health was much improved.

September 8, 1892, the patient has had another child since last seen. It is now nine months old, a large healthy boy. She is greatly improved in health, being much fleshier and of good color; walks lame, which condition is worse at some times than at others, depending upon conditions of the weather. Sometimes for a few days she is almost confined to a couch, having pain at the front of the joint over the great trochanter and sometimes as far as the knee and even to

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the ankle. On examination I find complete anchylosis, no adduction, no shortening, no atrophy.

Nearly all cases of spontaneous dislocation have been observed at the hip.[1] This case, no doubt, occurred through muscular action and through pressure of the patient's hands pushing the head of the femur toward the cotyloid notch as the limb was held strongly flexed. The anchylosis which now exists in the joint probably points to the rheumatism as an important causative factor.

II. *Complete Lateral Dislocation of the Knee.*—M. M., aged 50, a farmer, about five feet nine inches in height, 170 pounds in weight, was always a rugged, healthy, active man. In March, 1891, while working in the woods hauling logs with the team, a long and rather slender log to which his team was hitched became wedged in between two trees, one of which was in contact with the butt of the log, the other on the opposite side about its middle, while the team was hitched to the smaller end and drawing so as to bend the log and increase its pressure against both of the trees; at the smaller end the log had a diameter of about six inches. While the team was drawing forcibly the chain hitched about the log broke, and the latter springing back struck the leg. Upon examination there was found a complete lateral dislocation, the femur inward, the head of the tibia outward; there was about three inches of shortening. There was no abrasion or bruising on the surface to indicate what part of the leg had been struck. Reduction was easily accomplished by traction and manipulation and the leg was placed on a MacIntyre splint at an angle of about 160°. There was soon a large amount of swelling and considerable ecchymosis, especially on the outer side. There was not much shock. No pain was complained of by the patient. Pulsation could be found in the dorsalis pedis a few hours after the accident. The leg was kept carefully at rest for about three months, there being considerable tenderness about the joint. There was no sloughing, no abnormal sensations remained in the leg. There was considerable shortening in the calf muscles, producing a moderate degree of talipes equinus. This has been satisfactorily overcome in later months by exercises employed for stretching the group. There is now lameness and the limb can be fully extended and flexed to 90°.

The number of cases of this dislocation reported, in which there was a complete separation of the ends of the tibia and femur, is very small.[2] As in other cases the reduction was easily effected, the reaction slight and recovery good.

III. *Separation of the Upper Epiphyses of the Femur During Scarlet Fever.*—January 15, 1891, E. C., male, 4 years, was ill in spring of 1890 with scarlet fever; he had always been a healthy boy, active and perfectly formed. He had a long illness, from which he made a tedious recovery; he had several abscesses, one in front of the ear, one over the larynx and one below the great trochanter on the left side. These all seemed to be superficial. He became greatly emaciated and digestion was very poor. He was carried out of doors each day, and in autumn had sufficiently improved to be able to walk, in so

[1] Stimson on Dislocations, 1888, p. 463.

[2] Stimson on Dislocations, 1882, p. 467, etc.

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doing showing a very awkward mode of movement. It was described by his father as a waddling gait. His appearance and movement were characteristic of double congenital hip dislocation. On drawing the limbs down and shoving up again they move through a distance of about an inch and a half, and there was felt a cartilaginous grating in each limb, most marked in the left. No tenderness or swelling existed; his general health was excellent; he has no pain and sleeps well.

The diagnosis was undoubtedly separation and probably absorption of the epiphyses. I recommended fixation and extension by the use of a Thomas' double hip splint. This treatment was not adopted, and the boy was taken to an in institution in the United States, where a complicated appliance was employed.

In January, 1892, I examined the boy again and found that mechanical appliances of various kinds had been employed with a view to correcting the lordosis and keeping the femora in place. There is, however, little or no improvement. When the weight rests upon the feet the trochanters are carried far above the normal line. In any case of this kind I think it exceedingly doubtful whether an ambulatory appliance can be devised which will retain the femora in right place in reference to the acetabula.

MEMORANDA.

A SYNCEPHALUS AND AN OTOCEPHALUS RECENTLY PRESENTED TO THE WISTAR AND HORNER MUSEUM.

THE first specimen, a syncephalus (Janus, Janiceps) was presented to the museum by George Cooke, Esq., F.R.C.S., Ireland, at present practising in Mandeville, Jamaica. As may be seen in the illustration (Plate I., Figs. 1 and 2) it is of the more common type, Janiceps Asymmetros, the face behind (Fig. 2) being imperfectly cyclopean, but possessing a well formed proboscis and two distinct external ears. The anterior face is made up of the left side of the one fœtus and the right side of the other, as in all Janus headed monsters, although this duplex composition of the single face does not appear as plainly as in some specimens. There was, as always occurs in these cases, a common cord. The head was evidently too large for natural delivery, for the skull had been perforated and the brains evacuated. We use the word "brains" advisedly, for in these monsters there is always some degree of duplicity, if not of the cerebrum at least of the medulla oblongata, the cerebellum, the pons and the corpora

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FIG. 1.

PLATE I.

FIG. 2.

SYNCEPHALUS.

SYNCEPHALUS.

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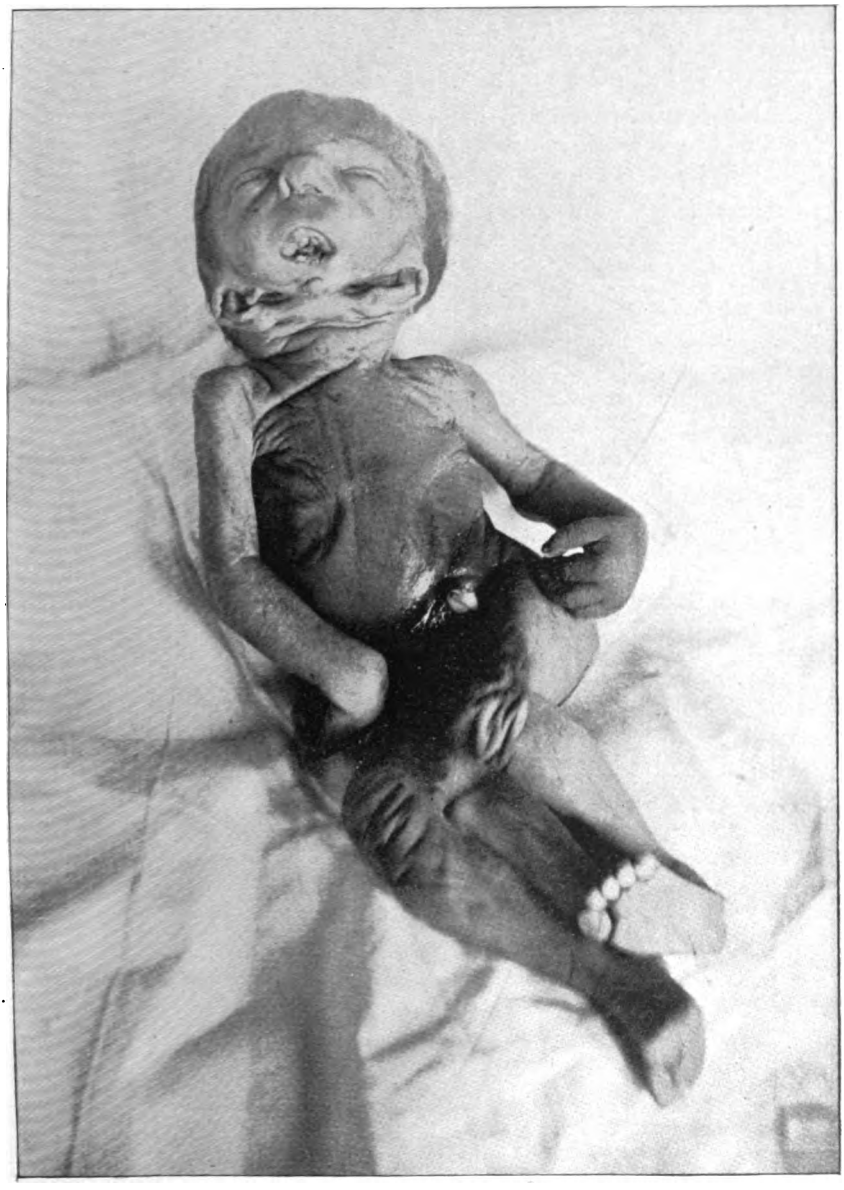
PLATE II.



OTOCEPHALUS.

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quadrigemina. The syncephalic monster can live at most for only a few hours. Usually it is born dead or dies directly after birth.

The second specimen, an otocephalus (Agnathia, Synotia) was presented to the Museum by Dr. Henry Ecroyd, of Newport, R. I. It is an exceedingly valuable addition to our collection (see plate II.).

In otocephalus, the lower jaw is altogether wanting or rudimentary; the ears approach one another, touch at their lower parts and are even united. The mouth is ill developed and may be represented by a minute orifice. In one case it was large enough to admit a small probe; in another the mouth measured three mm. in diameter. The upper jaw and the sphenoid may be also very ill developed. The hyoid bone is in some cases absent, in others perfect. The tongue is rudimentary or absent. The approaches to the trachea and œsophagus are in some cases open, in others closed.

Otocephalus is very rare in the human species but is not infrequent among sheep. The agnathia is usually associated with synopsia and also with hemicrania.

The cause of otocephalus is an arrest of the development of the lower processes of the first branchial arches (Meckle's cartilages).

BARTON COOKE HIRST, M.D.,
Professor of Obstetrics, University of Pennsylvania.

THREE CASES OF EXTRAUTERINE PREGNANCY.

THE following cases are reported from their individual interest, and also in the hope that a lesson may, perhaps, be drawn from them.

CASE I.[1]—Mrs. L., aged 25, has one child four years old. Since the birth of this child she has suffered from periodical attacks of severe abdominal pain. Sometimes the attacks of pain were so severe that she would faint; they were most likely to occur during a movement of the bowels. On my first visit I found the patient with severe pain, limited to the lower segment of the abdomen. The belly was tense and swollen. Her temperature was 100°. Vaginal examination revealed a tumor in Douglas' pouch which was exquisitely tender to the touch. Inquiry elicited the history of a rather irregular, painful menstruation. Three months previous the flow had ceased. Two weeks before the first visit, however, the flow had reappeared. An enema of glycerine, turpentine and salts was ordered with the result of almost immediate and entire relief from pain. On the next visit the tumor persisted, but it was less painful to pressure. This same evening there was a sudden attack of pain. I was summoned, but did not reach the house until several hours after the beginning of the pain, and found the patient blanched, pulseless, with an abdomen full of liquid. She died before an operation could be undertaken. At the post-mortem next morning the abdomen was found filled with fluid and clotted blood.

[1] UNIVERSITY MEDICAL MAGAZINE, July, 1891, p. 680.

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Both ovaries were bound down posteriorly to the uterus with old adhesions. The fimbriated end of the right tube capped a mass which was the size of a hen's egg, and had the appearance of a placenta. It was ruptured at its lower outer extremity. On dissection it was found to contain a cyst enclosing a small, perfect embryo.

CASE II.—Mrs. C., married four months, had missed one menstrual period. At the time for the next period she had severe abdominal pain and a slight flow. The flow continued with recurring abdominal pains of great severity. Suddenly, on retiring, she was seized with unusually severe pain and a faint feeling. Then, for the first time, she called her physician, Dr. Joseph V. Kelley, who recognized the condition and sent for me. A tumor was present posterior to the uterus, which was painful. Both being agreed that we had to deal with a ruptured extrauterine pregnancy, I drove into the city in haste for Professor B. C. Hirst. We reached the house at 6 A.M., several hours after the rupture, and at once began a laparotomy. The right tube was found to be the seat of an extrauterine pregnancy, from which a well formed fetus 1½ inches in length had escaped. The tube was tied and the mass removed; bleeding, however, persisted after the stump was repeatedly tied at successively lower points. The pelvis was then packed with iodoform gauze and the bleeding thus controlled. The patient sank, however, and died one hour after the operation.

CASE III.—Mrs. W. was married April 27, 1892. She had two normal menstrual periods after marriage. On June 30, *two weeks* after the last menstruation, she had a sudden profuse gush of blood which lasted but a few minutes. In four days she had a second similar flow—both of these without pain. In a few days the flow again commenced and continued until July 29; it was never profuse after June 30. Early in July the patient had severe cramp-like pains confined to the lower part of the abdomen. Sometimes these attacks of pain were of excruciating severity, but the pulse was never hurried nor weak. Repeated examinations of the uterus found it to be movable and painless, and apparently slightly enlarged. No tumor could be demonstrated after the most careful examination. On July 26 an unusually severe attack of pain occurred, this time accompanied by excessive tenderness of the vagina and uterus, and at this examination a tumor was found posterior to the uterus. There was slight rise of temperature.

Dr. B. C. Hirst was called and confirmed the diagnosis of extrauterine pregnancy. A laparotomy was done on the 29th of July, and the right ovary and tube removed. The tube was found occupied by a mass resembling almost completely a uterine fleshy mole. It was about the size of a hen's egg. No embryo could be demonstrated. The patient made an uninterrupted recovery.

All three of the above cases had irregular menses. In two there was a history of missed periods—in the first case two, in the second one, with a subsequent flow continuing over a considerable period. In the third case, though no period was missed, the flow began too soon after the last menstrual period and continued four weeks.

Pain was present in all the cases; it was severe, of lancinating character and confined largely to the lower part of the abdomen. A tumor was present

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in all three of the cases; its position was posterior to the uterus; it was tender to pressure. Fever was present to a slight degree in cases one and three. Case II was seen too late to determine its presence or absence.

Two of the cases were primiparæ. The first case had not given birth to a child for four years. It would seem that irregular menstruation; a long-continued flow or the missing of one or more periods followed by a flow; the presence of a painful tumor posterior to the uterus; severe pains like those of peritonitis occurring in the lower part of the abdomen, especially if occurring in a primipara, were almost positive signs of an extrauterine pregnancy. Certainly the signs are such as to warrant a laparotomy. If I had called a surgeon at once to remove the tumor from case one, she probably would be alive to-day. If I had hesitated in a like manner in cases II and III, they would have both died, the one without the proper effort having been made to save her life. Case I demonstates how dangerous delay may be where the above symptoms are present, even though there are good grounds for supposing the tumor to be entirely inflammatory in character. My advice would be, where there is irregularity of menstruation, pain and a tumor posterior to uterus, laparotomize without delay, for while perchance the tumor may not be an extrauterine pregnancy, it is foreign to the part and should be removed. To allow a patient to die from rupture of a tube, with such an experience as the above, is little less than criminal.

M. H. FUSSELL, M.D.,
Chief of University Medical Dispensary.

189 GREEN LANE, MANYUNK.

SYNCHRONOUS FRACTURE OF BOTH CLAVICLES.

THAT this injury is an exceedingly rare one, is evidenced by the fact that Stimson was able to collect but twenty-eight cases in all surgical literature. To these Dr. J. William White[1] has added one case, which was treated by position alone with a very satisfactory result. The infrequency of the accident is sufficient apology for a short report of a recent case in which there are additional features of interest.

F. R., a native of Hungary and driver in the Jeanesville mines, was admitted to the State Hospital for Injured Miners at Hazleton with the very common history of mine injuries—"a fall of top rock." Both clavicles were found to be fractured at the acromial ends. The areolar tissue over the chest was then emphysematous. A few hours later this condition was limited only at Poupart's ligament, the eyelids and wrists. The eyelids became completely closed. There was very great dyspnea, respiration being 72 per minute. No dressing was tolerated, and the patient required to be bolstered up in bed. Morphine sulphate, grain ¼, and atrophine sulphate, grain 1-120, hypodermatically, gave considerable relief and sleep followed. The next

[1] UNIVERSITY MEDICAL MAGAZINE, Vol. II, p. 203.

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day the patient complained of cough, and a simple cough mixture was prescribed. No dressing at any time was permitted, and subsequent treatment consisted of unavailing effort to enforce the recumbent position, aided by weight of sand-bags. With the characteristic stubbornness of his race, as soon as he became confident of recovery, all advice of his physicians was disregarded. He walked about the ward at every opportunity and ate reclining on one elbow. Notwithstanding all adverse circumstances a very satisfactory result followed. The emphysema began gradually to disappear and was gone by the tenth day. The dyspnea as gradually disappeared. Whatever deformity there may have been was symmetrical and consequently unnoticeable. He returned to work with good use of both arms.

IRA J. DUNN, M.D.,
Assistant Physician, Pennsylvania State Lunatic Hospital;
late Assistant Surgeon, State Hospital, Harrisburg, Pa.

SPARTEINE SULPHATE IN ANGINA PECTORIS.

AMONG the numerous recent additions to our Materia Medica sparteine seems to have assumed a permanent place. Its well-known action as a heart tonic and a nerve sedative makes it a useful drug in the work of the general practitioner. The smallness of the dose, its solubility and its freedom from untoward action, so far as known, are important features in its administration.

After a satisfactory experience in its use in functional neuroses of the heart, I was prompted some months ago to employ this drug in the following case of angina pectoris:

Female, aged 38, married, no children living, but had undergone four criminal abortions. She had enjoyed good health previous to the above operations. These combined with the free use of alcoholic stimulants had caused her to be quite nervous and excitable.

Menstruation had been regular, but profuse and prolonged. For more than a year previous to last November, when I first saw her, she had been having spells characterized by intense pain, accompanied, as she graphically expressed it, with a sensation of "icy coldness around the heart," an imminent sense of suffocation and a numbness extending down the left arm. The patient during the attack grasped the precordium with one hand, and with the other any near object for support to aid her in respiration. Her countenance was pale, anxious and betokened intense suffering. The attacks consisted of a number of paroxysms of this kind following each other closely, the whole lasting an hour or more. During the attack her pulse was 120, small and quick. For more than a year these spells had been occurring at irregular but frequent intervals. Besides she had often had brief, sharp shooting pains in the cardiac region whenever she exerted herself more than usual, as in going rapidly up stairs, or in sweeping. Any extraordinary mental excitement would almost always precipitate a major attack.

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After the paroxysms had subsided, for several hours the patient would be exceedingly nervous, with marked tremulousness of the whole body, and sometimes there would be slight mental wandering which would promptly disappear after she had obtained some sleep. A careful examination of the heart revealed no evidence of organic trouble, and with the exception of some accelerated action was negative. In the first attack in which I saw her, she was given one drachm of aromatic spirit of ammonia, the only cardiac stimulant at hand. This gave relief for a short time, and then the pain would return, so that the dose had to be repeated every twenty minutes. The patient stated that she had taken tincture of digitalis for a long time, increasing the dose until she took almost a teaspoonful three times daily, but she had never received any permanent relief from it. The prominent nervous symptoms in the case induced me to prescribe sparteine sulphate, gr. ¼, t. i. d. I did not see the patient again for more than a month, when I was called to her in another attack. This time neither the pain nor the dyspnœa were so severe, and they yielded more promptly to treatment. She stated that she had felt much better in the interval, the minor spells being less frequent.

The dose of sparteine sulphate was increased to four times daily. Five weeks later she had another attack which was comparatively mild, and was quickly relieved by chlorodyne. She reported herself as greatly improved, having had but few minor paroxysms. Recently, after an interval of nearly eight months, I saw this patient again. She had had but little trouble in that time except occasional darts of sharp cardiac pain, and these only annoyed her when she had been negligent in taking her medicine. Her general health was excellent, and she was capable of more exertion than at any time since the beginning of her trouble.

I am aware that this is too limited an experience to base an opinion upon, but the happy result obtained gives encouragement for further trial of the drug in similar conditions. At the Nervous Dispensary of the University Hospital sparteine sulphate has been quite extensively used in cardiac neuroses, and almost invariably with satisfactory results.

As a heart tonic it acts surely and promptly, and combined with this, its peculiar sedative and narcotic properties give it a place filled by no other drug at our command.

WILLIAM EVANS, M.D.,
Assistant Physician to Nervous Dispensary of University Hospital.

A CASE OF ATAXIC PARAPLEGIA OF SYPHILITIC ORIGIN.

THE so-called ataxic paraplegia or sclerosis affecting both the posterior and lateral columns of the cord is one of the few organic diseases of the nervous system which does not have syphilis as the most frequent cause. Gowers[1] says that

[1] Diseases of the Nervous System, 2d edition, Vol. I, p. 453.

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a history of syphilis is as rare as it is frequent in tabes. The following case, with a history of syphilitic infection shortly before the onset of the disease, and recovering under anti-syphilitic treatment, is deemed worthy of being placed on record.

F. M., aged 37, a policeman by occupation, presented himself for treatment at the clinic for nervous diseases of the University Hospital, with the following history: Seven weeks before, he noticed that he was losing power in his legs; previous to this, however, for some weeks he had had a dull pain in the sacral region. Very shortly after the onset of the paralytic symptoms he lost control of both the vesical and anal sphincters. His sexual power had also failed. Examination revealed the following conditions: The patient walked with his feet wide apart, but dragged his toes slightly; the toes of both shoes were much worn, and he tired very soon; there was inability to raise the feet over any slight elevation, and at times he had spells of trembling in both legs, especially when commencing to walk. If he turned quickly there was invariably loss of equilibrium; his station with eyes closed was very poor. When walking he felt as if cushions were under his feet. Slight loss of sensation was noticed in the legs and hands; there was also some difficulty in performing finer movements with the hands, such as buttoning his clothes. The knee-jerks were markedly increased, but no ankle clonus could be elicited. There was no pain with the exception of the backache above noted, and the muscles were well nourished. No ocular symptoms were present. The patient had had a venereal sore, followed by slight secondary symptoms, one year ago. Active anti-syphilitic treatment in conjunction with rest was at once begun, with a resulting immediate improvement. When last seen, about two months after commencing treatment, he was able to return to his business, the only symptoms remaining being a slight weakness of the vesical sphincter, some tendency to "stub his toes," and an increase in the knee-jerk.

It will be noticed that the dull ache in the sacral region to which Gowers calls attention was present in this case, and also that it, like the majority of cases of syphilitic nerve disease, had a tendency to be atypical, in the fact that there was some loss of sensation, a rare symptom in this disease.

The short period elapsing between the primary lesion and the onset of the symptoms of cord disease is also worthy of note. The rapid improvement was probably due to the fact that treatment was commenced early.

CHARLES S. POTTS, M.D.,

Instructor in Nervous Diseases and Electro-Therapeutics in the University of Pennsylvania; Physician to the Dispensary for Nervous Diseases in the University Hospital.

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CLINICAL DEPARTMENT.

EPISCOPAL HOSPITAL.

[Service of DR. RICHARD H. HARTE].

I. EXTENSIVE BURNS OF THE THIGH; NUMEROUS SKIN GRAFTS; RECOVERY.

Mrs. E. R., 30 years old, was brought to the hospital on the 2d of May, 1891. Her clothing had caught fire at her home from a burning newspaper, with which she was attempting to light a fire in the stove. In her fright she rushed into the street where a neighbor wrapped her in a piece of carpet almost immediately and thus extinguished the flames. In the meanwhile, however her clothes were completely destroyed. On examination it was evident that while the burns were not very deep the extent of surface involved was considerable, and her condition was more serious than would appear at first sight.

A dressing of equal parts of linseed oil and limewater was applied over the entire right thigh from the waist to the knee, as well as over the right arm and a portion of the back. She did not suffer very much pain after this, and in a few days the skin began to separate from the healthy tissue beneath, and the true extent of her injuries became apparent. The skin was denuded from the arm over an area as big as the palm of the hand, and a portion half as large from the back. On the thigh the denuded surface extended from six inches above the knee to a corresponding distance above the great trochanter of the femur, well over on to the median line anteriorly and on to the buttock posteriorly. The extent of this surface can be seen by reference to the cut (see Fig. 1), which, however, represents the condition present five months after the accident when the granulations around the edges of the wound had already decreased the extent of surface by more than an inch.

As the woman appeared to be well nourished, and reacted well from the shock of the burn and took plenty of nourishment the prognosis was favorable. There were no complications in this case, except the formation of a slough directly over the sacrum, about two inches in diameter, as the result of continued pressure in the one position in which she was the most comfortable. Otherwise she did very well and her condition presented nothing of interest, except the local manifestations. As soon as the necrotic tissues had separated from the living and a healthy granulating surface had been produced, skin grafting was attempted. For this purpose long strips of skin were removed from the arm of her husband and applied directly to the denuded surface. In removing the portions of skin antiseptic precautions were observed and cocaine injected subcutaneously before any incision was made. The detached fragments, about a dozen in all, half an inch square, were held in position by protective and an antiseptic dressing, which was renewed every two or three days. Suppuration soon developed around each one of the pieces of skin, and none of them took proper hold, so that although this method was tried two or three times, it was not successful.

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When Dr. Harte took charge of the ward he immediately commenced the application of small fragments of epidermis to limited areas of the raw surface each day. The method he employed was very simple, a needle and a razor constituting the only apparatus necessary. With the needle plunged into the epidermis a small portion of the skin was raised, shaved off by the razor, and transplanted to the denuded surface. The epidermis alone being necessary for a graft, a considerable number of these little particles could be removed without pain and with little or no oozing of blood. It was not necessary to observe antiseptic precautions in the preparation of these grafts. Over 2,000 were employed in this case, all of which were removed from the arm of the patient's husband, who was not bothered by the pain nor interfered with in his work for a single day, as a result of his generosity. After the planting of one of these grafts it would be ten days or two weeks before any change in their appearance would be noticeable. Then if they were securely fixed on the denuded surface they would begin to grow,—a thin film of glazed material stretching out from the original graft like oil on water. This growth would continue steadily for weeks until the borders would join some companion graft and merge one into the other.

The accompanying cuts represent admirably not only the extent of the surface involved, but also the appearance of the grafts in various stages of development. The clusters of isolated spots appearing as white blotches over the red field (Fig. 1) represent in one place six, and in another five of these small skin grafts in their sixth week of life. After they attained this considerable size their vitality seemed to diminish, and they were apt to drop off. Hence it is an advantage to plant the grafts closely together, never allowing more than half an inch to intervene between the portions of skin which are to act as coverings for the denuded surface. The smaller dots scattered round between the two groups of older skin grafts represent portions of epidermis two weeks old. While in the lower part of the wound may be seen two or three grafts four weeks old. The whole denuded surface was gradually covered in this way, and the entire surface finally skinned over. She left the hospital in the early part of January, 1892, but the cicatrix was not firmly healed until May, 1892. The process of healing therefore required about one year, although the denuded surface was well protected at the end of seven months. This process would no doubt have required a much longer period had no skin grafts been employed.

The dressings used were boric acid (grs. xx — ℥i of vaseline) ointment spread on lint and reapplied each day, alternating with zinc ointment occasionally. Every two or three days exuberant granulations were touched with a solution of nitrate of silver (grs. x — ℥i). The boric ointment was less irritating to the wound and more agreeable to the patient than the zinc ointment, and was therefore used more frequently.

The illustration (Fig. 1) is a reproduction of a photograph, taken by Mr. Hoyt, in September, 1891, and represents also by the dark lines on the margin of the granulating surface how much the surrounding skin contributed in five months time toward covering the denuded surface.

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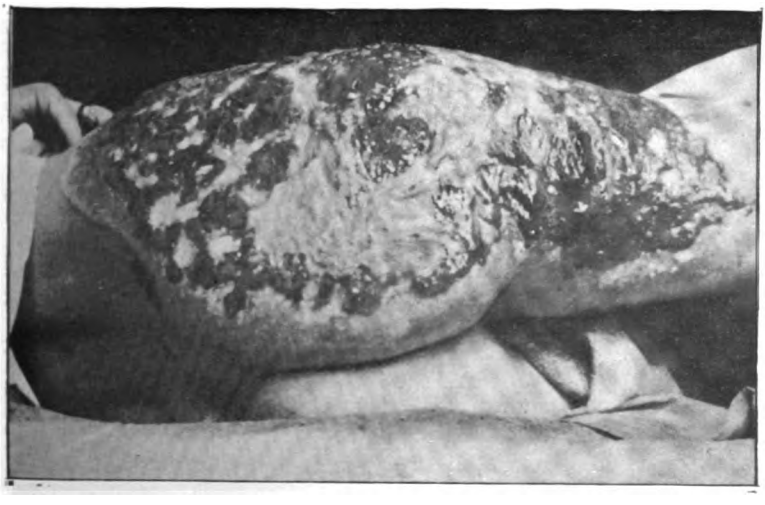
FIG. 1.

APPEARANCE OF EXTENSIVE BURN OF THIGH.

Five months after the accident. The white spots arranged in two rows of three each are single grafts six weeks old; the smaller spots are four weeks and the minute white dots ten days old.

FIG. 2.



SAME DENUDED SURFACE.

Six and a half months after the accident and about three months after grafting was commenced. The running together of numerous grafts is well shown.

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The second cut (Fig. 2) is taken from a photograph of the thigh as it appeared towards the end of October, 1891—six and a half months after the accident and about three months after the application of numerous grafts. In several places the grafts have run together and covered a considerable area. Along the margins the progress made by the granulations of the surrounding skin can be observed. The isolated white dots are grafts varying in age from ten days to three months.

The resulting cicatrix is a very serviceable one and entirely free from pain, one that does not interfere with the motion of the limb in any direction. The woman is now stout and healthy. She can do just as much work at present as before the accident. The places occupied by the grafts which appear as the larger white spots in the first photograph (Fig. 1) are now represented by rounded areas in the cicatrix containing more bloodvessels and more of the characteristics of true skin than the cicatrix resulting from the marginal granulations.

This case seems to illustrate very clearly the simplicity of one form of skin grafting and the excellent results which may be obtained by it under favorable circumstances.

2. EXCISION OF THE TONGUE FOR CARCINOMA.

John M., 69 years old, was admitted to the surgical ward December 19, 1891, with an epithelioma of the tongue. Before admission he had been under observation in the dispensary for several weeks. A solution of permanganate of potash had been used as a mouth wash and helped considerably to reduce the foul odor of the discharge from the ulcerated surface of his tongue. Iodide of potassium internally produced no effect upon the ulcer, which extended back on either side of the tongue to the soft palate and completely around the root of the tongue. He stated that he had always enjoyed good health and knew of no similar condition in his family. His personal history was excellent. He had always been a constant smoker, keeping a pipe in his mouth all day long, even at his work. This ulceration had commenced directly opposite the point where he usually held his pipe. So we might well attribute the origin of the growth to this cause. As the epithelioma was steadily increasing in size, and was giving him great discomfort, the operation of excision was advised in order to limit the growth if possible and prolong his life.

On the 19th of September, after ether had been administered, Dr. Harte performed tracheotomy so that the upper part of the throat could be packed with sponges and thus any subsequent trouble from bleeding and interference with the more important operation prevented. After the introduction of the tracheotomy tube the pharynx was accordingly filled with sponges to which strings had been attached. A free incision was then made from the corner of the mouth to the angle of the jaw, the divided arteries secured, and the mouth laid well open. The edges of the tongue were dissected away from the floor of the mouth with as much of the neighboring cancerous structure as possible. The wire of the ecraseur was then slipped into position around the root of the tongue and the anterior two-thirds of that organ removed. The remaining can-

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cerous tissues were scraped away thoroughly with a curette, and Paquelin's cautery applied all over the denuded surface. The hemorrhage was very slight. The flaps from the cheek incision were approximated by hair-lip pins and silk sutures with intermediate stitches of catgut.

The patient recovered well from the ether and seemed very little shocked by the operation. The tracheotomy tube caused him no inconvenience and was removed on the fourth day. He seemed to suffer no pain and appeared cheerful and improved. On the day after the operation a soft catheter was passed through the right nostril into his stomach, and half a pint of milk poured down the tube through a funnel. Nourishment was administered in this way for a few days at intervals of three or four hours, and seemed to give him little or no discomfort. On the fifth day he began to swallow small quantities of nourishment by the mouth. The wounds in his neck and face were dressed three times a day with antiseptic precautions. Suppuration occurred in the wound of the cheek from the foul discharge which was constantly present in his mouth, although a solution of listerine and permanganate of potash was employed constantly by him to keep his mouth clean.

Ten days after the operation he left the hospital considerably more comfortable than when he entered it. Not many days later he could make himself understood by talking almost as well as before. While his voice was thick, any one could understand what he wanted to say. Subsequently he came to the hospital once or twice a week to have his mouth wash renewed and to receive such medicine as seemed from time to time necessary. Gradually his visits became less frequent, and he died about six months after the operation as the result of a hemorrhage from the mouth.

3. CALCAREOUS DEGENERATION OF AN OLD CICATRIX.

C. MacC., 39 years old, was admitted to the hospital on the 22d of August, 1891. A sloughing ulcer about two inches in diameter was present directly over the greater trochanter of the right femur. The edges of the ulcer were very hard, resembling a piece of leather and enclosing an area the size of a silver dollar depressed about an eighth of an inch below the surface, and covered with unhealthy granulations. A large piece of yellowish-white material, resembling bone, was firmly adherent to the upper and inner surface of this depression. Fragments of this material had been from time to time discharged, and she feared that it was dead bone. A constant discharge had been issuing from this point for some time, and none of the various remedies applied for its relief had produced any beneficial effect. She said that when a small child she had been severely burned over the right thigh and the lower part of the back. The marks of the resulting cicatrices were very evident, extending from the spinal column well over the buttocks down on to the knee. The ulcer which gave her so much trouble occupied about the centre of this cicatrix and had appeared about five years before. As it had continued to grow steadily worse instead of better she came to the hospital for advice.

Careful examination showed that this discharge was in no way connected with the femur itself. No sinus led to the greater trochanter, nor was there

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any limitation of motion of the right leg. Close scrutiny of a fragment of the hard substance which was evidently the exciting cause of the suppuration showed that it was not true bone, but rather a hard calcareous material. As this condition had come on slowly while the bloodvessels over the affected area had been more and more compressed by the resulting cicatricial contraction, it seemed a very plausible explanation of the condition present to believe that a pathological change had been produced by the absence of a proper blood supply. The blood supply being gradually reduced by pressure from above, a change had taken place in the centre of the scar and a calcareous deposit produced. This had acted as a foreign body and given rise to suppuration, pain, discomfort, etc. There being no connection with the bone, Dr. Harte advised operation in order to remove as much as possible of the cicatricial tissue and permit better blood supply to the part affected.

Ether was accordingly administered, and a large portion of the tough scar tissue around the ulcer removed. The fragment of calcareous material was connected with a layer or strata of similar substance which stretched down into the deeper parts of the cicatrix. After removing a piece of the scar tissue as large as the palm of the hand, which was as thick and as tough as shoe leather, Dr. Harte made three parallel incisions of considerable extent in the surrounding more healthy skin to allow of approximation of the edges. One of these incisions extended from six inches above the knee to the great trochanter of the femur in the median line of the anterior aspect of the limb. Another from the beginning of this incision directly across in the form of a V to the sacrum. A third incision was made parallel to the spinal column over the entire length of the sacrum. After these flaps were dissected up almost the entire denuded area was covered by a slight change in their relative position. These incisions were so extensive that two hundred stitches were required to approximate the edges. The site of operation seemed to have been the playground of a circular saw. The greater part healed by first intention. The central portion, however, although considerably improved in appearance, was much slower to heal. When she left the hospital three months later an ulcerated surface about as big as a quarter of a dollar still remained. This was, however, comparatively easy to dress and did not suppurate with very much freedom. There is at this date no evidence of any return of the calcareous deposit.

The occurrence of such pathological change in a cicatrix is very unusual. Just what the steps of the change are it would be difficult to say. No doubt the perversion of nutrition by the gradual shutting off of the blood supply through the constantly increasing layers of connective tissue was responsible for the change. In the resulting cicatricial contraction, such as was seen in this woman's case, the pressure over the centre of the scar was considerable. Through tissue as dense as this scar became, no bloodvessels could hope to pass.

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University Medical Magazine.

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EDITORIAL.

MODERN ANTISEPTIC METHODS.

THE history of antiseptic surgery has been one of constantly changing methods. It is rare that one mind sees the perfect picture of its inspiration. In medicine where so much depends upon those subtle vital processes, which have so far, largely bid defiance to the inquiring investigator, it is particularly difficult to forsee results; conclusions must be based on observation, not on theory. The original conception of antiseptic surgery, while appreciating the real fundamental principle involved, was yet imperfect in its application of the details necessary to this end. Lister realized as clearly as does anyone to-day, that the cause of suppuration was to be found in infection by living germs, and the question at once arose how effectually to exclude them. This was a new problem. In this field of labor Lister was a pioneer, and it is not unnatural that his first methods should have failed to stand the test of time. It is necessary, perhaps, to begin the investigation of a new subject with a theory, but it must be subjected to the rigid tests of actual practice before adoption. In this matter the clinical surgeon and the bacteriologist have worked together with the result of rapidly developing more perfect surgical methods. So great has been the progress made that the orginal object has almost been lost sight of in the efforts to secure a higher standard—the term "antisepsis" is gradually being supplanted by "asepsis," *disinfection* is made unnecessary by *avoiding infection.*

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Infection from the air is not now feared; instruments and dressings may be absolutely sterilized, so that the sources of danger have been narrowed down to the hands of the operator and the skin of the patient. The subject of how to render the skin free from germs has, of late, received considerable attention. As yet no method has been discovered that will accomplish this object. Numerous varieties of harmless, as well as pyogenic germs, are found in the glands and in the deeper layers of the skin, which remain after all forms of disinfection. Notwithstanding this, the skin can be so cleansed as to leave little to be feared from this source. Improvement is still to be hoped for, however, in this direction. The use of heat, either dry or in the form of steam or boiling water, is a manifest improvement over corrosive chemicals in the sterilization of instruments and dressings.

The sources of infection being known therefore to be the skin of the patient or the hands of the operator, the practical lesson to be deduced is to keep the hands from contact with the wound as far as possible. It is desirable to keep the wound dry, and when every precaution is used to have each article sterile that touches the field of operation, the copious floodings with antiseptic solutions become unnecessary, and, in fact, objectionable. As a result of improved technique, wounds are drained much less frequently than formerly. There is equal necessity now to drain infected wounds that heretofore existed, but when an aseptic operation has been performed through healthy tissues, drainage serves no other purpose than to delay the healing of the wound, and, perhaps, convey infection; particularly is drainage useless when the wound cavity can be obliterated, either by deep stitches or by pressure applied over the dressings. It is important in these cases to keep the wound dry between the time the operation is completed and the dressings applied. For this purpose the wound may be packed with antiseptic gauze or sponges and pressure made by the assistant during the introduction of the sutures, which are to be rapidly tied down after the packing is removed, the pressure being maintained until the dressing is complete. The collection in the wound of blood and serum is thus prevented, which, if present, not only prevents primary union, but offers a most favorable soil for the growth of germs, if any have gained admission to the wound. If any proof of the inutility of constant drainage is needed, the experiences of abdominal and peevic surgeons abundantly suffice. A most noticeable fact is the now infrequent use of the drainage tube by these specialists.

At present the following may be considered the best practice; the most perfect disinfection possible of the skin of the patient and the hands of the operator, perfect sterilization of instruments, dressings, ligatures and sutures, preferably by a suitable form of heat, the avoidance of strong germicides after the skin is opened, keeping the wound as dry as possible, avoiding unnecessary drainage, and the securing of perfect skin apposition.

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BOOK NOTICES.

THE MÜTTER LECTURES ON SURGICAL PATHOLOGY, delivered before the College of Physicians of Philadelphia, 1890–91; by Roswell Park, A.M., M.D., St. Louis: J. H. Chambers & Co., 1892.

Dr. Park is to be commended for permitting the publication of these lectures, making them available for general use and securing their preservation. A short time after their presentation before the College of Physicians the lectures appeared in serial form in the *Annals of Surgery*, and in their present garb represent a reprint from that journal. The rapid increases in our knowledge of vital pathology, promising in the near future even greater and more marvellous revellations, have given a trend to the discussions of Dr. Park to be expected from one occupying his position among the younger and scientific surgeons of this country.

The lectures are devoted mainly to a review of the modern studies of the surgical infections. In the introduction the author first takes up the inflammatory process, dividing it into the regenerative form, the productive, exudative, destructive (gangrenous, purulent, pyo-gangrenous) and granulomatous; and while such a classification is clinically eminently proper, in a strictly pathological sense these varieties do not merit such clear definition from each other. A discussion of thrombosis, hemorrhage and hemic regeneration in traumatic anemias, follows, leading up to a consideration of the cellular life of the animal organism, its relations to oxygenation and its chemical products, ptomaïnes, leucomaïnes and the animal toxines in general.

Coming to the subject-matter proper, the surgical infections, the author names among conditions predisposing to such infection, embolism, general and local depression of vitality, inflammation, cold, injury, position and method of inoculation, the character and arrangement of the tissues at seat of inoculation, and the conditions and nature of the virus inoculated. In order, the following infections are considered: the *formation of pus* and the *pyogenic bacteria* (followed by references to the results of absorption of the products of wounds, *surgical fever*, *intestinal toxemia*, *sapremia*, *septicemia* and *pyemia*), *septic peritonitis* (under which caption is described the method of testing the relative values of antiseptic agents), *tetany*, *tetanus*, *actinomycosis*, *anthrax*, *malignant edema*, *rauschbrand* (black leg), *glanders* and *tuberculosis*. Considerably more than 200 pages of the volume are occupied by the above subjects; the remaining seventy or more are devoted to the subjects of *the mixed* and the *secondary infections*, especially as seen in the bones and joints of those who suffer from infectious diseases, the *infections apt to complicate pneumonia* and *those likely to complicate erysipelas*.

In the selection and arrangement of the matter of these lectures the author shows an admirable pathological judgment, completing the purpose of a review of the recent advances in a most excellent manner. The citation of authorities adds a commendable feature to the book; and there probably does not exist in the language a similar volume upon the subjects embodied in this treatise which so fully serves as a descriptive and reference book in this field of study. It is not wholly as a compilation, however, that these lectures should be judged; there are numerous records of observations and experiments conducted by the author, as well as pertinent suggestions as to the nomenclature, classification and study of infections, which can be considered but as contributions to the sub-

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ject. It is interesting, for example, to note the endeavor on the part of the author to eliminate the time-honored but erroneous term, *pyogenic membrane*, used in connection with the wall of an abscess; as he truly says, it is no more pyogenic than it is chromogenic, and suggests, if a descriptive term be demanded, that *pyophylactic* be employed as signifying the protective function of the structure. So, too, Dr. Park would limit the meaning of the term *pus* to that form which corresponds to the old name "healthy pus;" where the cells have been more or less completely broken down, the vitality of the causative agent (parasitic or not) has disappeared, with probably a decided change in the amount of watery elements, the mass is no longer pus in the sense described. Where such matter retains some of the gross characteristics of pus it may be spoken of, according to the author, as a *pyoid* or *puruloid;* where it has become thick and caseous and no longer has the appearance of pus it may be called *archepyon*, "originally pus." There is need of some such terms, although it is not likely that they will reach a large usage; in exact descriptions, however, their employment can scarcely fail of advantage.

It is a misfortune that in the case of so excellent material there can be so little that is good said of the manner of its preservation and presentation to the public. The typography is miserable, the paper on which the book is printed is poor, and the binding is no better. The text is full of typographical errors; and the author is to be condoled with upon the treatment his work has obtained at the hands of the publisher.

DISEASES OF THE EYE; A HAND-BOOK OF OPHTHALMIC PRACTICE. By G. E. DE SCHWEINITZ, M.D. 8vo, 600 pages. Philadelphia: W. B. Saunders, 1892.

The need for a clear, concise and at the same time entirely reliable treatise on diseases of the eye, for use as a book of reference for the general practitioner, or a text-book for the student of medicine, could not have been met more satisfactorily and completely than in this volume.

There are many excellent and standard works on ophthalmology which fail to meet this need, simply because in them the subjects are treated too much at length, and in a manner more profound than the average student desires. Their very depth deters him at the outset from making the attempt to master their contained knowledge. The contrary is apt to be the case with compends or quiz manuals. In these books something must be slighted and often the usefulness of the book is marred by the attempt to condense important facts into too small a focus. Standing, as this work does, midway between these two classes of books, it is with great satisfaction that we find the subjects so carefully and accurately treated, and yet the whole arranged in a form at once so concise and practical. It fills a place on one's desk heretofore vacant.

The author hopes "that it may prove of service to students and practitioners who desire to begin the study of ophthalmology." It will prove that and much more. The practical character of the work and the careful treatment which is given to each subject makes it a valuable book for those already familiar with ophthalmic science.

The mathematical portion, mainly written by Dr. Wallace, gives the salient points of general optical principles in a way that simplifies that most necessary part of text-books on ophthalmology, often neglected as being too deep. In the part on refraction one finds the views and teaching of authorities on this most important branch of ocular therapeutics; and we are not left in doubt as to the proper procedure in correcting errors of refraction.

Dr. de Schweinitz has made a most happy arrangement of subjects, grouping them in a thoroughly methodical manner which enables the physician to

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find without difficulty important points to be remembered in the study of the various ocular diseases. Especial care has been taken by the author in the discussion of his subject to keep up with the advances constantly being made in ophthalmology, and we recommend the volume as representing at the same time advanced teaching and sound truth.

The chapter on external examination of the eye will be found most useful. Especially clear and satisfactory is that part of it in which is described the methods for determining the presence of muscular troubles. Great care is shown in the preparation of the chapter on operations. From cover to cover the work deserves the highest commendation; it should be found on every practitioner's list of necessary text-books.

A NEW PRONOUNCING DICTIONARY OF MEDICINE. Being a voluminous and exhaustive Hand book of Medical and Scientific Terminology, with Phonetic Pronunciation, Accentuation, Etymology, etc. By JOHN M. KEATING, M.D., LL.D., and HENRY HAMILTON, with the Collaboration of J. CHALMERS DA COSTA, M.D., and FREDERICK A. PACKARD, M.D. Philadelphia: W. B. Saunders, 1892.

The rapid progress made in the various branches of medical science during recent years has made necessary the introduction of new words; this in turn has created a demand for new dictionaries, and the present volume has been produced to meet this want.

The introduction to the book is entirely given up to a consideration of pronunciation. Tables of medical abbreviation and suffixes and prefixes precede the body of the work.

In an appendix is collected a great mass of miscellaneous information, including weights and measures, table for calculating the period of utero-gestation, diameters of the female pelvis and fetal head, diagrams showing the eruption of the temporary and permanent teeth, table of heart murmurs, diagrams of the nerve plexuses, localization of the functions of different segments of the spinal cord, a table of the chief characteristics of the principal bacteria—non-pathogenic and pathogenic, a table of the number of drops in different liquids, a dose table expressed in metric terms as well as the more usual measures, list of incompatibles, a valuable table of poisons and antidotes, a list of the newer drugs with their chief properties, uses and doses, the various "motor-points" of the body, table of diseases, symptoms, etc., designated by proper names, formulæ of various solutions, drugs and materials used in antiseptic surgery, etc.

With regard to the dictionary proper, we find much that is new, the phonetic pronunciation is quite satisfactory, the definitions clear and concise and the topography excellent. We regret, however, the very apparent omission of many modern words that should have been incorporated. This must detract from the usefulness of an otherwise valuable book.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

PROPHYLAXIS AGAINST CHOLERA.

CARAVIAS (*Münchener medicinische Wochenschrift*, No. 32, 1892) believes that during cholera the stomach contents have lost their acidity and hence it is possible for the comma bacillus to live and delevop in the intestine. The administration of albumin in combination with other peptogenic substances will insure the secretion of an acid substance in the stomach which will prevent the development of cholera bacilli. As soon as the cholera epidemic begins, the author administers as a prophylactic albumin and dextrine in pill form.

TREATMENT OF CHOLERA.

The *Münchener medicinische Wochenschrift*, No. 32, 1892, gives an abstract of an article by KRZYWICKI in which he proposes the use of an emetic of tartar emetic and ipecac for the purpose of producing a flow of bile. It is to be used from the beginning of the disease until the appearance of the algid stage. If the pulse is weak the medicine may be given in wine. If there is an indication of obstruction of the bowels, or if there is entero-colitis or gastritis, the emetic is contraindicated. When the emetic cannot be used, calomel is advised in one-grain doses. If it does not cause a stool, castor oil is to be used with it. Alcohol should be used during the attack when it is impossible to cause a flow of bile. For the cramps rubbing is advised. For personal prophylaxis he suggests the avoidance of all excesses, especially alcohol. He does not consider a disposition to constipation of any special value, but recommends castor oil and rheubarb to regulate the bowels. The use of eight-grain doses of quinine twice a day the author considers of value as a prophylactic.

SALOL IN CHOLERA.

LOWENTHAL (*Deutsche medicinische Wochenschrift*, No. 32, 1892) presents an article upon the specific action of salol in cholera. He begins with thirty-two grains given half hourly in eight-grain doses. One physician in the Philippine Islands treated fifty-three cases with salol and had but three deaths, or a mortality of six per cent. or forty-three per cent. less than the ordinary death rate. *WeichselbaumDas Österr. Sanitatswesen*, No. 32, 1892, describes the preparation of cover-glass specimens of the stools as follows: A small bit of the mucous contents of the stool is taken up with a platinum spatula which has been first heated red hot and then cooled; the material is spread as thinly as possible upon a cover-glass and allowed to dry. It is then passed three times through the flame and is ready for staining. It is well to make a number of slides from different portions of the mucous contained in the stool. In the last meeting of the Société de Brolagie, of Paris, GAMALEIA describes some experiments upon dogs. He concludes that cholera in dogs is very similar to the disease in men, the rice-water stools and the continuous vomiting being very characteristic. It is remarkable how rapidly dogs develop an immunity against cholera. If one of the animals is given a dose of cholera poison which will cause characteristic symptoms but which will not kill, the next day the dog will stand any amount of the poison without any reaction.

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Vaccination against Cholera in Men.

Haffkine (*Münchener medicinische Wochenschrift*, No. 32, 1892) is quoted as having used upon himself some of the anticholera vaccine made from pure culture of comma bacillus. He first injected subcutaneously some of the vaccine in the left flank. There was fever of about one degree for twenty-four hours, with headache and accompanying discomfort. There was some pain and swelling at the seat of the injection which lasted nine days. Six days after the first injection he took another injection of a stronger vaccine material in the right flank, and again there was rise of temperature and severe pain. He quotes three other cases where the injections were used in men and with the same results. It has been proven that the vaccine matter is protective to animals. Haffkine believes his experiments prove it harmless to man, and he expresses the hope that it will also afford protection.

The Use of Carbohydrates in Diabetes Mellitus.

Leo (*Deutsche medicinische Wochenschrift*, August 18, 1892) points out that a diet in which carbohydrates are strictly prohibited, while it usually causes a decided improvement in the condition of the patient, the improvement rarely lasts, the weight of the patient frequently decreasing in spite of the decrease of sugar in the urine. He believes there are two reasons for this: First, that the change of diet and unusual amount of albuminous material brings about a loss of appetite, and second, that a certain amount of carbohydrates is necessary for the maintenance of the bodily condition. He quotes Pflüger's work as proving that the use of a non-nitrogenous food, even fat, causes a decided decrease in the necessity for albuminous substances in health, and also in disease where there is an increase in the ingestion of albumen. It is a fact that while the consumption of albumin in many severe cases of diabetes is greatly increased, the excretion of albuminoids is relatively small. The role of carbohydrates in diabetes is doubtless complicated, and it is evident that only that part which is excreted unoxidized can be used as substances which can check the use of albumin. It has been proven by Kütz that even in severe illness part of the carbohydrates are excreted unchanged, but that part remains and is assimilated. He also proved that by increased addition of carbohydrates to the food the excretion of nitrogen was diminished. It is probable that an absorption of part of the carbohydrates, when administered in diabetes, causes a diminution of the excretion of albumin. The author experimented with two diabetics, as follows: The first patient was given an exclusively albuminous diet, and the amount of the excretion of albumin both in urine and feces estimated. The patient was then given a large amount of starch and cane sugar. The starch was then stopped and the increased amount of urine continued by the use of a large amount of water. On the tenth day, with the administration of sugar, the amount of urine was 2190 c.cm., with an excretion of 21.161 g. of nitrogenous material. On the twelfth day, without any carbohydrate, but by using water, the amount of urine was 2195 c.cm., with the excretion of nitrogenous material 23.36 g. The second patient, after having the excretion of nitrogen estimated, received during five days 168.5 g. of carbohydrates in three parts. The urine measured 2110.5 c.cm a day, 132.9 c.cm. more than when he was taking only albumin, but in spite of this the excretion of nitrogenous material was 1.2 g. less per day while carbohydrates were taken than when they were excluded. The author wishes to be understood to believe in the necessity of the exclusion of carbohydrates for diabetic food for a certain length of time, but believes that if the weight and strength begin to fail, then one can advantageously add starches to the food.

Sarsaparilla.

The *Therapeutische Monatshefte*, August, 1892, gives an abstract of an article by Kobert, in which he gives his observations upon sarsaparilla. It contains three glycocidic substances:

1. Parillin is a crystalline almost insoluble in cold water.
2. Sarsaparillasaponin is amuphous, but soluble in water.
3. Sarsasaponin found in crystalline needles and is soluble in water.

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All three substances belong to the saponin group. When given internally they cause flow of saliva, vomiting and diarrhea, and by subcutaneous injection, aseptic inflammation. Absorption does not take place either from the intestinal canal or the connective tissue. These three substances dissolve the blood corpuscles, sarsasaponin being the most active. When brought in direct contact with blood by intravenous injection they cause hemoglobinuria, methahemoglobinuria and bilirubinuria. The poisonous effects on animals are long delayed, not beginning for twelve to twenty-four hours and death not taking place for six days. Death always takes place from the secondary effects of the blood change.

Post-mortem appearances were as follows: Icterus of the skin as well as the connective tissue, fascial and serous membranes. A reddish exudate was always found in the cavities. The mucous membrane was edematous and thickened, many ulcerations existed. The author considers these substances as not poisonous when there are no intestinal ulcerations from which absorption can take place, but when given with mercury, which may cause slight lesions of the mucous membrane, they may be more harmful than useful. He is uncertain whether the substances are useful for the treatment of syphilis, but thinks that the sarsasaponin must be the most active antisyphilitic if any of them is. He thinks that experiments should be made with this substance to prove its uselessness or value.

Euphorine.

Köster (*Therapeutische Monatshefte*, August, 1892) has used this substance in ninety cases. It was usually used in seven-grain doses, thrice daily. No effect on the pulse or respiration was ever noticed, nor any deleterious effect. In one case there was a slight amount of cyanosis, and once the patient complained of slight weakness. In forty-two cases it was used as an antipyretic with the following results in different diseases: In general, there was a marked fall of temperature. The degree of fall of temperature varied, but so far as could be discovered followed no rule, and the variations were apparently greater than with other antipyretics. The least remission was in a case of angina in an anemic individual, and was only half a degree. The greatest remission was six degrees. The average was from two (2) to three and one half (3½) degrees. The nature of the disease had no effect on the degree of remission, but it was noticed that the greatest remission took place as the disease neared the crisis. The fall of temperature took place soon after the administration of the drug, and lasted usually about one hour. When the temperature again began to rise it did so very quickly. The fall of temperature was usually marked by a severe sweat, and the patient usually expressed himself as feeling better. He considers euphorine, on the whole, a useful antipyretic, but it was marked by what he says might about be called a capricious action. It was used in twenty cases of headache. In three cases there was complete relief. In six the patients were improved. In eleven there was no effect. Usually antipyrin or antifebrin had a better effect in these cases. It was used in eleven cases of neuralgia with no effect. In fourteen cases of acute rheumatism the fever sank quickly and the pain was more or less diminished, but the case usually lasted longer than it does with the salicylic acid treatment.

Eruption from Antipyrin.

Eichhorst (*Therapeutische Monatshefte*, August, 1892) reports the following cases: Case I.—A soldier was admitted to the hospital on May 26 with all the symptoms of typhoid fever. On May 29 the abdomen, buttocks and legs became covered with a rash closely resembling measles. The rash remained seven days and gradually disappeared without loss of the epidermis. Eichhorst diagnosed this as antipyrin eruption, in spite of the fact of the patient's strenuous denial that he had taken any powder. The patient finally admitted that he had taken a powder of eight grains of antipyrin on May 19. The author claims this as a late exanthem of antipyrin in contrast with the following case. A patient suffering from typhoid fever was ordered sixteen grains of antipyrin. One hour after the injection of the medicine an exanthem of the same nature as in the previous case occurred. Two other cases of an early exanthem are reported in the literature of the subject.

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An Epidemic of Typhoid Fever.

Fodor (*Deutsche medicinische Wochenschrift*, No. 33, 1892) gives the following interesting details of an epidemic in Fünfkirchen in Südungarn. It is a town of 34,000 inhabitants, situated on the southern side of a mountain 2,000 feet high. The soil consists of sand and clay. The water supply comes from the mountain through several primitive canals. The town is sewered. Surface closets are used, and are scarcely ever emptied because their contents sink into the bottom. While sporadic cases of typhoid fever constantly occurred in the town, there had been no epidemic for twenty-three years. In November, 1890, the first case occurred, and the cases multiplied so rapidly that up to the 25th of November 678 cases had occurred. The new cases then decreased and averaged two a day until February, 1891. Then another outbreak occurred, and in two weeks there were 147 cases. The cases then diminished in number and gradually disappeared. A total of 1,228 cases occurred, with a death rate of 7.3 per cent. The summer of 1890 was hot and dry. Finally, on October 28 a severe rain occurred which lasted four days. Typhoid began in the first week of November and reached its height in the second week of that month. The second outbreak occurred in February and was preceded by warm weather and the melting of snow which had been on the ground for some time. The part of the town in which the epidemic raged most fiercely was supplied by one large spring, the water of which was carried in a clay pipe. At certain intervals the water was allowed to flow into open basins, and from there was conducted by smaller pipes. In one place the pipes pass through the yard of a house and close to the cesspool. In the summer these clay pipes contained but little water, and the bottoms of the basins were covered with mud and refuse. When the rise of water came this deposit was stirred up and mixed with the water used by the inhabitants. The water was examined bacteriologically, but no typhoid bacilli were discovered until March, when five specimens examined were found to contain typical typhoid bacilli. Though the exact place of the contamination of the water supply is not known, the author believes that the rains of October carried the stools of some isolated case of typhoid into the basins and hence into the pipes from which the inhabitants drank.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

The Surgical Treatment of Perityphlitis.

F. Kammerer, of New York City, gives in the *Archiv für klinische Chirurgie*, Band 43, S. 279, his experiences with this affection and reviews its treatment. There has been considerable advancement made of late years in the operative procedures required. At the beginning there was a disposition to operate too readily, but we now know that in many cases surgical treatment can be dispensed with. The percentage of what are regarded as operative cases differs widely with different authors, some giving it as high as 95 per cent. The disease has its seat almost always in the processus vermiformis, although in rare cases the cecum itself may be the part affected. During the past two years the author performed laparotomy for perityphlitis twelve times. During the same period a number of perityphlitic abscesses were incised above Poupart's ligament, in the lumbar region or through the rectum. The presence of pus has been regarded as an indication for operation, but in two cases with marked infiltration of the iliac fossa, in which an exploratory puncture showed pus, the cases had so improved by the following day that no operation was done, and recovery promptly

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took place. It is undoubted that marked general and local symptoms can be caused by an extremely small amount of pus. This may come sometimes from a perimetritis, and in that case it is not so septic and the chances of absorption are much better than if it is perityphlitic in origin. The cases which have repeated attacks are those of inflammation of the vermiform process which have not proceeded to perforation. The absorption of pus takes place in only the rarest cases, and one dare not rely on its taking place. Large abscesses should, if possible, be treated without opening the abdominal cavity. Even small collections involving the appendix can sometimes be reached posteriorly. They make a tumor the size of an egg which, under narcosis, can be felt per vaginam or rectum, or bimanually in the region of the loin. They can be opened by a somewhat anteriorly concave incision above the posterior portion of the crest of the ilium. The article continues with a discussion of the individual cases.

THE OPERATIVE TREATMENT OF EXSTROPHY OF THE BLADDER AND EPISPADIAS.

In the *Archiv für klinische Chirurgie*, Band 43, S. 394, TRENDELENBURG describes his operation for the relief of exstrophy of the bladder. Dieffenbach, so famous for his plastic procedures, refused to operate on these cases. Thiersch, by his method of skin flaps, succeeded in obtaining quite good results, but not entirely so. Hirschberg showed that the sphincter muscles were present, but simply parted by the cleft, and he attempted unsuccessfully to unite them. The breadth of the defect even in children will reach to six centimetres. If it is attempted to bring the sides together in the median line, as suggested by Gerdy, it can only be done by such a free loosening of the abdominal muscles from their pelvic attachments and the making of such free lateral incisions as to render the operation too dangerous and unsatisfactory. In one case, however, in a young man with a small cleft, the author succeeded, by loosening the bladder from the edges of the cleft, in uniting them. The use of Demme's compressor in order to force the iliac bones closer together, is not to be advised as they fail to accomplish the object. If it is desired to approximate the separated pubic bones it may be done either by dividing the body and descending ramus, or else loosening the ilium from the os sacrum at the sacro-iliac synchondrosis and pressing the two halves of the pelvis together. The former is too serious a procedure and is not to be advised. The latter in adults would also be too dangerous, but in young children it is otherwise, as with them the use of the chisel is unnecessary. The ligaments may be divided with a scalpel, which can be entered half way down in the synchondrosis. At the commencement of the operation the left forefinger is introduced into the rectum, so that the location of the ischiatic notch is known. By this means the location of the synchondrosis is determined and one is enabled to avoid the gluteal artery. The history of a case on which he operated in 1881 unsuccessfully is then given. The child was four years old, and died eighteen days after the operation of necrotic pyclitis. The patient had dilated ureters and hydronephrosis. To press the halves of the pelvis together the author finally devised a bed, to which he fastens the child down and encircles the hips with a gutta-percha trough, padded, the sides of which are pulled together by weights. After several failures success was finally obtained. From five to seven years is the period at which it is advised to operate. The procedure is divided into three stages: (1) Division of the synchondrosis; (2) union of the cleft; (3) closure of any remaining fistulæ. Full histories of the author's cases are given with illustrations.

EXTIRPATION OF THE SPLEEN IN LEUKEMIA AND PSEUDO-LEUKEMIA.

VON BURCKHARDT, in the *Archiv für klinische Chirurgie*, Band 43, S. 439, gives the history of a case in which the enlarged spleen was removed. The proportion of the white to the red corpuscles in this case was one to five. The patient was in very fair condition and, apparently, stood the operation, which lasted about an hour, very well. A few hours later she got restless, the pulse increased to 120, and later, fourteen and a half hours after the operation, death occurred from heart failure. The ordinary leukemic changes were found on section. This case convinced the author that surgical intervention was not suitable in similar cases. Two years later he was induced by the solicitations of a patient and by the

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hopelessness of the case otherwise to again operate. The proportion of the white to the red corpuscles was one to two hundred before the operation. This patient recovered from the operation, and three months later the proportion was one to one hundred and fifty. Ten days after the count was made the woman died. A third case had one white to one hundred and five red corpuscles. It also was operated on and lived eight months, the proportion being at the time of death one to fifty. In these latter two cases the operation was evidently not the cause of death. From statistics of cases operated on he concludes that a proportion of one white to seventy-four red corpuscles does not forbid operation, but when, as in the case of Köberle, it falls as low as one to forty-four, then it is a positive contraindication.

The Treatment of Cystitis by Intravesical Injections of a Mixture of Iodoform, Ether and Oil.

Okev-Blom, in the *Annales des Maladies des Organes Génito-Urinaire* for August, 1892, gives the results of his treatment of cystitis by intravesical injections of the following mixture: Iodoform, 1 gram; sulphuric ether and olive oil, each 7 grams. The liquid is introduced into the bladder by means of a Guyon instillator. One to six cubic centimetres are employed at a time, and the injections are made every second or third day. The patient is to pass his urine before the injection is administered, and the instruments are to be disinfected. There are a dozen cases detailed, in all of which the injection proved efficient. They were cured after a relatively short treatment, or else much improved. The cases were both acute and chronic. In one case, however, the pain was ameliorated and the urine cleared only a little. The vesical pain usually diminishes after the first or second injection, and the patient's general condition becomes more comfortable. The most favorable results were obtained in the acute cases of gonorrheal cystitis. The injection is followed by pronounced vesical irritation for two or three minutes, which is followed by a more or less marked anesthesia. The method is not advocated as a universal cure for cystitis, but is simply one valuable method of treatment.

Laryngectomy in Kocher's Clinic in Berne.

In the *Archiv für klinische Chirurgie*, Band. XLIII, Heft. 1, Lanz gives a *résumé* of the history of the operation and describes its technique. The details of twelve cases are included in his account. The antiseptic procedures are as follows:

(1) Sterilization of the surgeon's hands, the towels and field of operation, with a 1 to 1000 acid bichloride solution.

(2) Covering the shaved head with a gutta percha cap taken from a 1 to 1000 solution.

(3) Covering the site of the operation with compresser and gutta percha tissue wrung from a 1 to 1000 solution.

(4) Instruments difficult of disinfection to be boiled two hours, the rest be laid in a five per cent. carbolic solution.

(5) For sponging sterilized balls of gauze are to be used.

(6) Drainage to be made with glass tubes taken from a 1 to 1000 sublimate solution.

(7) Ligatures of silk from the same solution.

(8) Disinfection of operation wound with sublimate 1 to 1000, followed by sterile salt water (physiological solution).

(9) Dressing of freshly prepared sublimate gauze. Wood-wool pillows sterilized with steam at 120°.

The use of iodoform has been abandoned on account of its toxic action. Instead of Trendelenburg's canula with an inflatable rubber collar, Kocher uses one with a cup-shaped sponge tied on its end. This is to be made of a size suitable to the case. Mixed chloroform-morphia narcosis is employed. Bleeding is to be carefully stopped. The removal of the larynx is to be effected as much as is possible by dry dissection. It is to be opened at the crico-thyroid membrane and then the thyroid cartilage split in the median line with scissors. Removal is to be accomplished by beginning below and working upward. Bleeding is to be checked by forceps and the thermo-cautery. The place in the surrounding tissues nearest

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which the growth appears to have taken its origin is to be touched with the cautery. The wound is tamponed and treated openly or only slightly closed with a few stitches. To prevent septic pneumonia (schluck-pneumonie) the dressing is changed often under a carbolized spray, the wound dried and touched in places with tincture of iodine and a spray of normal salt solution kept going in the room. At the close of the operation the sponge canula is replaced by an ordinary one of Luer and the lower angle of the wound carefully tamponed. No permanent esophageal tube is to be used. When possible the feeding tube is to be passed through the mouth and food given before the dressing is changed, as thereby any food that has gotten into the wound may be removed. Subsequently a canula with a wooden ball valve in the external end is employed.

Surgical Intervention in Cases of Non-calculous Affections of the Liver.

Lerrier (*Revue de Chirurgie*) reports two cases of cholecystostomy performed for the treatment of hepatic affections, which had been previously regarded as strictly within the province of the physician. In one case an exploratory laparotomy was performed and a biliary fistula established for the relief of symptoms of congestion and hypertrophy of the liver, with intense jaundice and febrile attacks. On the fourth day after the operation the jaundice had almost completely disappeared and the liver had diminished in size. The patient soon recovered from the hepatic affection and had remained entirely free from relapses when seen eighteen months later. The second case was one of chronic jaundice due to hypertrophic cirrhosis in a little girl aged 12. The gall-bladder, which was distended, was exposed by a vertical incision along the outer edge of the right rectus muscle, then opened and fixed to the abdominal wall. No benefit was obtained from this operation. The jaundice persisted and the liver increased in size. The author also gives the statistics of his operations on the gall-bladder and bile ducts. Of eight cases of cholecystectomy, two were fatal; one on the eighth day and the other after an interval of twelve months. The remaining six cases were a complete success. The list includes only one case of cholecystotomy, which was a fatal one and three cases of cholecystostomy, two of which were successful.

Treatment of Actinomycosis.

Rafper (*Riforma Medicale*, 1892) reports four cases of recovery from actinomycosis in which the disease was accessible to surgical measures. These were scrapings and injections of antiseptics into the tumors. The injection fluid consisted of a 5 per cent. solution of carbolic acid in glycerine. If sinuses were present cotton wool saturated with the solution was introduced into them. Veterinary surgeons have for a long time employed tincture of iodine with much success as a local application, but quite recently a very distinguished teacher at the Utrecht Veterinary School has drawn attention to the value of iodide of potassium in every form of the disease. From his experience, in cattle affected with actinomycosis, it is an infallible remedy. The drug is pushed until its full physiological action is manifest.

Splenectomy.

Tricomi (*Riforma Medicale*, 1892) reports three cases of splenectomy. Married woman, age 26, eighteen months before coming under observation noticed a painless swelling in the left side of her abdomen. She had at that time suffered from tertian ague for about two months. The tumor gradually increased in size, and the patient became pale, emaciated and very weak.

On examination the tumor, which was freely movable and which followed the movements of respiration, was found to extend from the left hypochondrium to within a finger's breadth of the left iliac crest and reached two finger's breadth to the right of the median line. Its surface was firm, convex, smooth and elastic. The proportion of white to red corpuscles was about one to fourteen. The case being diagnosed as chronic splenic

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leukemia, splenectomy was performed. The vessels of the hilum were of enormous size, and the patient lost a litre of blood before the pedicle could be tied and divided. The operation lasted one hour and a quarter. After removal the spleen was found to measure thirty centimetres in length and fifteen and a half in breadth and seven in thickness. The weight of the organ was about 2.143 kilos. The patient died of collapse four and a half hours after the operation. The author attributed the fatal result to the loss of blood during the operation and to the relatively large amount of blood withdrawn with the excised organ. The author thinks splenectomy in cases of leukemia dangerous in proportion to the enlargement of the spleen, and that the operation is contraindicated when the organ weighs more than three or four kilos. In the other two cases the spleen weighed respectively 968 grammes and 780 grammes. Both of these cases recovered.

An Efficient Method of Controlling Hemorrhage after Suprapubic Prostatectomy.

Keyes (*Medical Record*, September 17, 1892). The common means of arresting hemorrhage after operations upon the bladder which has been opened above the pubes are: (1) Ligature in accessible positions; (2) pressure for moderate oozing; (3) the catgut stitch passed with a short curved needle, through the tissues about the point of incision, or across the narrow hemorrhagic area; (4) Paquelin or other cautery; (5) forci-pressure.

The author has two especially long pressure forceps designed for use within the bladder. With them small morbid masses, particularly if pedunculated, may be grasped and removed under the eye without hemorrhage, the catgut suture being applied with a needle through the underlying tissues before the forceps is removed, and tied before the hemorrhage has had a chance more than fairly to express itself.

The Albarran tubes constitute another means of controlling hemorrhage; they have been used successfully upon animals and upon the human subject by being passed into the urethral orifice on either side, and left there to drain the urine away, while the outer parts of the bladder are packed with any suitable substance for the purpose of exercising pressure. The whole bladder may be packed, without the use of these tubes, with gauze or sponges tied upon a string, and subjected to uniform pressure for a number of hours without harming the kidneys; the pressure, however, is very distressing. The excavated prostate itself may be crowded full of iodoform or other gauze, but it does not stay well in place. Excessively hot water may be injected freely and for a long time into the bladder for the purpose of controlling hemorrhagic oozing, but during its use a considerable amount of blood is necessarily wasted. To overcome this waste of blood the author has devised a plug similar to that used after peritoneal cystotomy.

The tampon is made of bichloride gauze. A square of four thicknesses of gauze is first cut, the length of each side being about six inches. Upon this are placed eight thicknesses of gauze cut square, each side measuring four inches, and upon this eight other thicknesses of gauze also square, the side measuring three inches. Centrally upon this three inch pad, a small white shirt button is tied by a stout silk ligature, transfixing the pad and tied upon the six inch square surface. This central button also has a piece of silk attached, running out freely in the direction away from the three inch surface. This is to facilitate extraction. Each of the corners of the six inch pad is stoutly tied with a piece of silk, and the silk from each of these corners is knotted at its end into a double knot, while the silk running out backward from the button is tied with a single knot. A bulbous bougie can be passed through the urethra into the bladder and out the suprapubic wound and tied to the double silk upon the end of it, the pad then being drawn firmly down into the excavation.

The pad can be easily removed.

Operative Treatment of Pott's Disease.

Vincent (*Revue de Chirurgie*, April, 1892) advises the drainage of abscesses and the removal of diseased bone in cases of Pott's disease. The drainage tube is to be passed U-form either entirely in front of the vertebræ or directly through the bodies.

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The operation is carried out by making a vertical incision on each side of the spinal muscles, joined by two others drawn horizontally inward, converting them into T incisions; one or more ribs are resected to give access to the front of the spine; then a blunt, curved probe is passed in front of the vertebræ from one side to the other, and the tube drawn through under its guidance. A curette can be made to pass through the bodies of the affected vertebræ obliquely forward and inward until it strikes an instrument held under the periosteum on the other side. The latter method is employed when the bodies of the vertebræ are broken down and a curved drainage tube is drawn through the bone.

Two successful cases are reported.

Laparotomy in Tuberculous Peritonitis of Children.

Aldibert, in the *Revue Mensuelle des Maladies de L'Enfance*, June, 1892, reviews the results of this method of treatment. Although the performance of laparotomy for tuberculous peritonitis in children is of quite recent date, the author was able to find fifty-two recorded cases. From a surgical point of view they may be divided into three classes: the ascitic, the fibrinous and the ulcerous. The ascitic may be subdivided according to their course and localization into acute, subacute, chronic generalized and chronic encysted. The fibrinous may be divided into the dry chronic, properly so-called, and the fibro-adhesive according as there are or not present adhesions between the intestinal loops themselves and between the intestines and abdominal walls. The ulcerous class may be divided into those which are dry and those which suppurate, and the latter may be either generalized or encysted, sometimes in a single place, sometimes in several.

Out of thirty-two cases of the ascitic form, there was one death following operation. In the subacute, out of six cases, there was one death from generalized tuberculosis, at the end of a month. The other five cases recovered. Of sixteen cases of the chronic generalized form, one death occurred from tubercular meningitis, the remaining fifteen cases recovering. In the chronic encysted form, out of nine cases, there were no deaths. These statistics show the excellent results in laparotomy for the ascitic forms, and they improve as the cases are more chronic and the effusion more encysted. It also demonstrates the superiority of surgical intervention over medical treatment. Of twelve cases of the ascitic form, five or forty-one per cent. appear to have been definitely cured. In the fibrinous form three out of six cases were known to have remained cured. In the ulcerous form the results have not been good where there have been several separate pockets in different parts of the abdomen, but are better where they have been more localized. To sum up, of forty-six cases of tubercular peritonitis in children, there were four deaths and forty-two cures. A mortality of 8.6 per cent. and 91.4 per cent. of cures, of which about one-quarter were permanent. In no case was death directly due to the operation, and when a cure was not obtained the case was nevertheless improved. The disappearance of the tuberculous growths and nodules after laparotomy has been performed, has been observed several times. One is justified in concluding that laparotomy when done in an aseptic or antiseptic manner is not dangerous, that it cures tuberculous peritonitis, and that the successes which it gives is more than can be gotten by means of medical treatment; but one should remember that it is not applicable to every case of tubercular peritonitis, because some of them are beyond the resources of surgery.

The Period of Invasion of the Prostatic Urethra in Cases of Acute Gonorrhea.

Heisler, in the *Pester medicinische Chirgurgie Presse*, 1891, reports the results of his investigation of fifty cases of gonorrhea. He finds that in twenty per cent. the prostatic urethra becomes affected in the course of the first week; in thirty-four in the course of the second week; in fourteen per cent. in the course of the third week; in twenty per cent. in the fourth week; in four per cent. in the sixth and seventh week, and in two per cent. in the second and third months. According to the author the constitutional condition does not play any rôle in the etiology of posterior urethritis.

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The Cure of Cold Abscesses by Injection of Iodoform Oil and the Technique of the Operation.

Redard (*Gazette Médical de Strasbourg*, September, 1892) since the year 1886 has used injections of iodoform oil in the treatment of all cold abscesses, with seventy per cent of cures.

At first solutions of iodoform in ether were used, but owing to certain complications, as extreme gaseous distention of the sac, sloughs, consecutive fistula, poisoning and relapses, its use was discontinued.

The action of the iodoform when injected into a tuberculous cavity is on the tubercular granulations, the original cause of the disease and not on the pus or the tubercular osseous tissue. With the oil, inflammation of the walls of the sac and intoxication have not been observed.

The cure is generally rapid, averaging two or three months when the abscess is very large and communicates with bone.

The technique of the injection is as follows:

A thoroughly sterilized trocar and canula is introduced into the cavity and the pus drawn off. The cavity is now carefully washed out with the following solution:

Naphthol	10 grms.
Distilled water.....qs. ad.	100 c.c.
Alcohol, 90°.	5 grms.

The iodoform oil is now injected:

Iodoform	10 grms.
Sterilized olive oil.....qs. ad.	100 c. c.

The injection continued until there is a return flow.

The puncture is then closed with iodoform collodion, and a bandage with moderate compression completes the dressing. From two to three injections are generally sufficient for a cure.

A Contribution to the Statistics of Mammary Carcinoma.

Dietrich, in the *Deutsche Zeitschrift für Chirurgie*, Band. 33, Heft IV and V, discusses the etiology, pathological anatomy, clinical course, therapeutics and ending of mammary carcinoma. The article concludes with a few remarks on the disease in the male. The article is based on cases which occurred in Lücke's clinic. Out of 157 cases, the greatest number, 19.8 per cent., occurred between the ages of 46 and 50. There was no case under 34 years nor over 73. Of 107 cases, 70 per cent. were married, 13.2 per cent. single, and 16.8 per cent. widows. Nineteen per cent. had borne more than six children, and the same number had nursed more than six, while 28 per cent. had not nursed any. Twelve cases had had mammary abscess, six in the affected breast alone, five in both breasts and one in the healthy breast. The time intervening between the mastitis and carcinoma was in two cases 3 months, and in the others, 3 years, 13 years, 19 years and 38 years. The time in the remaining cases could not be ascertained. In ten cases there was a history of trauma. In only three cases was there any fissure or eczema, such as discribed by Paget, to account for the disease. In six cases there was a history of heredity, being only 5.6 per cent. Out of 105 cases the right breast was the one affected 53 times, the left 48, and both breasts in 2. Twelve cases had the disease situated in the upper-middle region of the breast; 19 in the upper-outer; 8 in the upper-inner, and 10 in the outer. In 15 cases the lower and inner parts were affected, in 5 the central, and in 5 the whole breast. Of 95 cases the axillary glands were involved but not the skin in 13; the skin and glands were neither of them affected in 4; the skin alone was implicated in 20, and both skin and glands in 58. Total amputation, with cleaning out of the axilla, was done in 98 cases. Removal of the breast only was done in 2 cases; these are still living, one five and a-half years and the other eight years after the operation. The disease had existed on an average 17.2 months previous to admission. In operating it was the rule to go two-fingers breadth off from the affected parts irrespective of any defect which might be left. In 2 cases it was necessary to tie

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and excise a piece of the vena axillaris. An antiseptic occlusive bandage was applied without drainage. Of 44 cases, from 1872 to 1880, 9 died, 1 from erysipelas, 3 pyemia, 3 extension of the disease, 1 pulmonary embolism, 1 pleuro-pneumonia, and 1 unknown. Of 104 cases, between the years 1880 and 1890, 8 died, or 7.6 per cent.: 1 died of pneumonia, 3 of erysipelas, 4 of recurrence, and 1 of pulmonary embolism. There has been no erysipelas in the cases during the past nine years. In 1880 there were seven patients free from any recurrence, the times being ten months to two years and ten months, but now there are 11 cases which have remained free for over three years. In all there were 13 cases or 16.2 per cent. that could be called definitely cured. Winiwarter gives 4.7 per cent.; Henry, 9 per cent.; Fink, 16.7 per cent., and Kaeser, 7.5 per cent.

A New Osteoplastic Procedure for Spina Bifida.

Bobroff, in the *Centralblatt für Chirurgie*, June 4, 1892, describes his operation for the relief of spina bifida. The therapeutics of spina bifida are difficult and rarely crowned with success. Such procedures as compression, repeated punctures, electrolysis, incision and ligature belong already to the past history of surgery. The method of puncture with injection of iodine, so warmly commended by the London Commission of 1885 as the safest and best method, is also sinking into obscurity. Plastic operations, which seek to obliterate the defect in the spine by excising the sac and closing with soft tissues, only give temporary results. On that account Dollinger attempted osteoplasty in 1885 with success. He cut with strong scissors the rudimentary arches of the fourth and fifth lumbar vertebræ and pushed them from either side toward the median line, and there united them with a bony suture. Senenko made an incision in the sacral region on each side of the defect, chiselled off two pieces of bone and united them in the median line with bone sutures. In four months the posterior portion of the sacrum showed an even bony surface.

The author operated on a boy eight years of age affected with spina bifida as follows: By means of two curved incisions the skin covering the sac was removed. The sac itself was divided one centimetre away from the spinal canal, and the stump allowed to drop in. A hole remained the size of one's forefinger. From the upper angle of the skin wound an incision was carried to the right, along the edge of the iliac crest. The gluteus maximus muscle was detached from the bone and pushed outward, and a piece of bone three centimetres long, two wide and a little less than one centimetre thick, chiselled off the crest of the ilium. The piece with some of the soft parts still attached was brought around and fastened in the defect in the spinal canal with sutures. In order to insure union the edges of the opening were freshened. The wound was then closed, a drain being left in its lower angle. On the second day the drainage-tube was removed and a compression bandage applied. In two months, most of which time the patient laid on his stomach, the transplanted piece had firmly united with the surrounding bone. Partial control over the sphincters was acquired. When the defect is situated in the dorsal region the author suggests taking the bone from the adjacent ribs.

Craniectomy.

Bourneville (*Semaine Medical*, August 10, 1892) at the Congress of Mental Medicine, presented a number of skulls of idiots, which showed no trace of synostosis or of premature ossification. Several skulls were shown on which craniectomy had been performed, and in these and in others the sutures had not united. He goes on to prove that Lannelongue's theory of microcephalus, on which the operation of craniectomy was based, rests on an unsound basis both anatomically and physiologically, and the procedure should, therefore, be abandoned. The author reports never having seen a single case of complete synostosis in an idiot or "backward" child. Rejis also reported a dozen cases with no benefit to the little patients. Death occurred in one case. Much stress is laid on hygienic and educational measures in treating these cases.

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THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.

ASSISTED BY

DAVID CERNA, M.D., PH.D.

A NEW ALIMENTARY REGIMEN.

In a communication to the Académie de Médecine, G. SEE (*Revue de Thérapeutique Médico-Chirurgicale*, July 15, 1892), treats of the above subject. According to the author, we eat, in general, entirely too much meat, and in the course of his article he points out the evils of an exaggerated diet. The reader can make comments from the following *resumé:* The writer maintains that nutritious substances should possess the *sine qua non* property that they should furnish, in relation to their weight and volume, the greatest amount of nutritive matter which constitutes, as is well known, the thermogenic element. A second property should be that of satisfying taste and hunger without producing too rapidly a sense of fullness. For example: 500 grammes of milk furnish 17 grammes of albumin, 15 grammes of fat and 20 grammes of carbo-hydrates, or a total of 295 calores. Five eggs produce 349 calores, and from 250 grammes of meat are manufactured about the same number of heat-units. But since the five eggs and the one-half of meat cause a sense of weight too quickly, it may be said that milk is more nourishing than meat, because, thermogenesis being equal, the first article of food is retained longer in the stomach without causing damage. Again, 200 grammes of bread with 45 grammes of butter, similar to 500 grammes of meat and 60 grammes of plain bread, produce 800 calores; but, notwithstanding the fact that meat is considered as a more nutritious article of food, the bread and butter are to be preferred since these together scarcely weigh 250 grammes, while the meat and bread weigh almost 600 grammes. In other words, a larger quantity of meat is required to produce an effect equal to that caused by the buttered bread. A third example is given by comparing two carbo-hydrates: 400 grammes of bread produce 1,000 calores; 700 grammes of potatoes only give 600 units. Therefore, a larger amount of potatoes is required to obtain a result inferior to that produced by bread. Besides being nutritive, articles of food must undergo stomachic digestion and intestinal absorption. The digestion of aliments is facilitated by these coming in contact with the gastric juice, this being the general rule with liquid articles, such as milk, and also in regard to eggs and well triturated meat. This chemical digesti bility, however, is not absolute, especially in the case of certain articles, such as hard eggs, large pieces of meat; coarse bread, etc., which may finally undergo digestion; if not in the stomach, at least in the intestines. The duration of their stay in the stomach is not a definite cause of indigestibility, because the intestines may supply any deficiencies of that organ.

Assimilation or utilization of aliments in the intestine does not nevertheless, correspond exactly with their gastric digestibility; the articles most assimilable and absorbable are meat, eggs, cheese and carbohydrates, when such are deprived of their coating of cellulose. Of vegetables, the least beneficial parts, relatively, are the albuminates, and especially the amides or saline compounds. The vegetable albuminates are less easily absorbed than the animal albumins, but the starches are totally so, and in great part the fatty substances. This selective assimilation in the intestine (and this is a more important point for digestion than for the organism), takes place even when the chemical powers of the stomach are stayed by disease. To obtain this compensatory force in the intestines, the modes of preparing food must be carefully considered. It can only be brought about by the aid of raw meat, eggs; milk, cellular tissue well cooked, and sometimes bread crumbs. In diseases of the stomach, intestinal digestion takes place only when the food is well triturated; emaciation follows the absence of digestion or intestinal assimilation, and inanition when the malady of the stomach is accompanied by anorexia, as in cases of gastric catarrh.

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Treatment of Infantile Diarrhea by Paracresotate of Sodium.

Demme and Loesch (*Revue Générale de Clinique et de Thérapeutique*, July 20, 1892), recommend the paracresotate of sodium in treatment of infantile diarrhea, as an intestinal antiseptic. The drug not only disinfects the stools, but also diminishes their frequency. The maximum doses are put down as follows: For a child 2 years of age, 0.50 grammes per day; for a child 4 years of age, 1 gramme, and for one 10 years of age, 3 grammes. These quantities should be gradually increased, according to the case. Demme's formula for diarrhea is this:

℞.	Paracresotate of sodium.....	0.10 gramme.
	Tincture of opium.....	11 drops.
	Brandy.....	1.00 gramme.
	Syrup of gum arabic.....	5.00 grammes.
	Distilled water.....	25.00 grammes. M.

Sig.—A teaspoonful every two hours. Sometimes it is advantageous to substitute the elixir of paregoric for the tincture of opium.

Salipyrine in Rheumatism.

In all cases of rheumatism, treated by salipyrine, this drug, according to Treschtenberg (*Vratch*, No. 18, 1892, *Revue Générale de Clinique et de Thérapeutique*, August 10, 1892), produced favorable results. The remedy was given in daily amounts of five grammes, in divided doses. The author cites a rebellious case of acute articular rheumatism, in which antipyrine and the salicylate of sodium were of no avail, but which yielded to the action of salipyrine.

Treatment of Albuminuria by the Bromides of Strontium and Calcium.

The above has been the subject of a communication by G. See (*Revue de Thérapeutique Médico-Chirurgicale*, August 15, 1892). He has given the bromides of strontium and calcium, alternately, in doses of from 4½ to 5 grammes in the course of the day. The two litres of urine, voided by the patient in twenty four hours, contained 23 grammes of albumin. On the morning after the treatment, the urine yielded only 12 grammes of albumin. This diminution continued steadily until the albumin completely disappeared. To the medicinal treatment was conjoined a severe diet, vegetable in great part and rich in fatty substances. No alcoholic drinks were ingested, and only tea, small quantities of alkaline mineral water, little white meat, chicken, and brains occasionally, were allowed.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D., AND FRANK W. TALLEY, M.D.

Analysis of Twenty-five Cases of Hydatidiform Moles.

Craigin (*Boston Medical and Surgical Journal*, Vol. CXXVII, No. 10), has analyzed twenty-five cases of recently reported mole pregnancy, from which he has deduced the following points: (1) Primiparæ are not rarely affected; and the average age is younger than is generally estimated; (2) there may be present any of the ordinary changes of breast,

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labia, etc., found in normal pregnany; (3) there is medico-legal importance in the following: (*a*) origin from impregnated ovum only; (*b*) the placenta thus formed is nearer the seat of the myxomatous change; (*c*) the mole may be carried beyond term or after a living child; (*d*) the appearances after delivery of a mole may be indistinguishable from those after childbirth; (4) reflex symptoms of nausea and vomiting common to pregnancy, so far from being absent or rare, are rather frequent, and as a rule are early, severe, progressive; (5) there may be edema without albuminuria. Schul, who has recently made a study of the relation of albuminuria to hydatidiform mole, finds that while it does not occur oftener, it generally appears earlier than in normal pregnancy; (6) uremia may be a complication, and with convulsions is amenable to the same treatment as in pregnancy; (7) too much stress has been laid on the so-called characteristic discharge of thin watery blood, with occasional cysts. For while in the cases cited the flow may not have been pure blood, it was so nearly that in a large proportion of cases, that no distinction was noted. Therefore, any vaginal discharge, watery or bloody, slight or considerable in amount, intermittent or constant and without cysts, is perfectly consistent with hydatidiform mole; (8) sudden hemorrhage, sufficient to cause grave general symptoms is frequent; as is also an exhausting intermittent flow.

Atmospheric Pressure in the Retention of the Placenta.

Cavilan (*Archives de Tocologie et de Gynécologie*, March, 1892), is of the opinion that in a large number of cases the retention is not due to generally admitted causes, as inertia of the uterus; spasmodic contraction of the uterus; the adherence of the placenta, etc.; but to the pressure of the atmosphere. He reports three cases to support his theory, from which he draws the following conclusions:

Atmospheric pressure intervenes in the retention of the placenta, and frequently is the sole cause. The causes of the more continued passive retention of the placenta are in most of the cases secondary, for the principal action is the pressure of the atmosphere. The pressure of the atmosphere may simulate the adherence of the placenta and give place to serious intervention not exempt from danger. The atmospheric pressure possesses a variable action in the case of retained placenta.

The pressure of the atmosphere holds the placenta in place on the principle of a cupping-glass which yields at no point for the establishment of an equilibrium of pressure. Perforation of the placenta establishes this equilibrium and the placenta thus readily seperates from the uterine wall. The procedure that has always given brilliant success is the following:

Traction is made on the cord by an assistant or midwife. The fundus of the uterus is fixed. The operator then introduces his right hand into the uterine cavity, continuing along the cord to its insertion, which is the guide to the centre of the placenta. The placenta is then perforated through the medium of the index-finger. The difference in consistence of the tissues informs the accoucher when the perforation is completed. These manœuvres are to be carried out under the most rigorous rules of antisepsis. The yielding tissue of the placenta scarcely opposes the perforation, whilst that of the uterus, corresponding to the point of insertion, is sufficiently resisting to prevent rupture.

This procedure is to be employed in retention of the placenta whatever may be the cause, retaining until later the other procedures. The advantages claimed for it are its innocuousness and the facility of its execution.

Internal Hemorrhage During Pregnancy.

Sutugin (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band XXIV, Heft 2), describes a rare case of internal hemorrhage during pregnancy, caused by the rupture of adhesions between the ascending and transverse colon. The patient, a VI para, far advanced in pregnancy, was admitted to the Moscow Maternity with the membranes ruptured and the amniotic liquor drained away. She complained of pain over the heart, dyspnea, vertigo and debility. Four days before she had fallen off a step while carrying a heavy load, striking on her left side. For three days she felt extremely weak, but had no other symptoms. On the day before admission she ceased to feel the movements of the child.

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On admission the patient was noticeably pale. The cervix about four centimetres long, scarcely permitting the introduction of the finger. The child's head was felt above the superior strait and was movable. Fetal heart sounds not discernable. Examination of heart and lungs negative except a few disseminated fine bubbling râles in the right lung. During the examination the patient fainted. A diagnosis of internal hemorrhage from unknown cause was made. By the examination of the abdomen the percussion note of the left half, from the rib to the pelvis, was pronouncedly dull, while the note on the right half was tympanitic. The contour of the uterus was indefinite, but during the palpation contractions were noticed and its oval form was recognized, eliminating complete rupture. As no indication of the possible source of the bleeding was found it was decided to wait. After stimulating the patient with wine she complained of severe pain in the abdomen. Shortly after she was seized with cramps in the extremities, the pulse became imperceptible and she suddenly died. Immediately before the death there was a rapid swelling of the abdomen with dull note in the hypochondrium and fluctuation could be detected.

At autopsy large blood coagula were found between the transverse colon and the left side of the stomach and near the flexura colica sinistra. The bursa omenti minor contained a large blood-clot. The mesocolon was the seat of hemorrhage between its layers, from whence extravasation had occurred into the subperitoneal connective tissue, along the descending colon to the sigmoid flexure. Above, stripes of extravasation extended to the stomach, where, near the lesser curvature, was a large extravasation between the layers of the lesser omentum. The hemorrhage had evidently occurred from a blood vessel in the mesocolon, and by the rupture of the peritoneum over some part of the transverse colon had escaped into the peritoneal cavity.

Concerning the Complication of Pregnancy, Labor and the Puerperium with Chronic Valvular Disease of the Heart.

Schlager (*Zeitschrift für Geburtshülfe und Gynäkologie*, Band XXIII, Heft 1), refers to the fact that during pregnancy and labor the work of the heart is increased, that this is not accomplished through a true hypertrophy, but through a reserve energy peculiar to the healthy heart. As soon as the uterus is emptied, either an overfilling of the pulmonary circulation and right heart takes place, as was pointed out by Spiegelberg; or the right heart receives too little blood, it remaining by deficient abdominal pressure, in the abdominal veins, as was advanced by Fritsch. In the first condition the heart activity is increased, in the latter the vitality of the heart sinks. Schlager agrees with the first view. These conditions are important in a heart, the seat of valvular disease. Evidences of valvular disease appears usually first in multiparæ, as earlier it was compensated and not until the beginning of the muscular degeneration, and increased functional activity are evidences of insufficiency apparent. These appear especially intra-partum during the expulsive pains and after the labor. From the last twenty-five cases in the Berliner Frauenklink, Schlager draws the following conclusions: After a number of labors, in a woman the subject of heart disease, the probability of spontaneous abortion is greater. The complication of pregnancy with heart disease is very dangerous; the prognosis for early heart disease is most doubtful, for advanced, serious. The prognosis in patients with unfavorable surroundings is worse than in the well-to-do. Among the single valvular affections mitral stenosis appears to be the most dangerous. In the twenty-five cases, two died intra-partum and ten during the puerperium. Of the children, 29 per cent. were stillborn and only 46.5 per cent. lived. As to therapeutics, Schlager thinks that all females suffering from heart disease should unconditionally be advised not to marry. During pregnancy rest and nursing should begin with the first months. For albuminuria the milk diet; for the symptoms of insufficiency the customary remedies. Abortion should only in the most urgent cases be produced, on account of the unfavorable results of this operation in heart patients. In the management of labor the guiding precept should be to deliver the patient as quickly and as easily as possible by the appropriate operation in each case. A mild chloroform narcosis is desirable in order to spare the heart the great nervous excitement. The child must be

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very slowly extracted and immediately afterward a sand-bag placed upon the abdomen in order to combat the sinking abdominal pressure. The pulse must be continually observed. Ergotine or ergot should only be used in urgent cases, as they by contraction of the vessels oppose the heart. During the puerperium the diet must receive attention and long rest in bed is desirable.

A Case of Pregnancy in a Didelphous Uterus.

Rossa (*Wiener klinische Wochenschrift*, September 1, 1892), reports the case of a woman, 24 years of age, brought to the gynecological clinic at Gratz for laparotomy, with the diagnosis of tubal pregnancy and threatened rupture. She was a II-para, in the seventh month of pregnancy and had experienced regular pains for thirty-six hours. During the interval of uterine contractions she suffered from severe pain and was greatly exhausted. She gave the following history: Puberty at 15, menses regular. Five years before, her first child was born, anticipating term by fourteen days. Labor easy. On the third day after labor a yellow pipe-shaped mass was expelled from the genitals. Last menstruation six months ago. Movements of child felt four months later. For two days, following bodily exhaustion, had had violent uterine contractions and continuous pain for several hours.

Abdomen greatly distended, abdominal wall tense. Uterus about the size of a seventh or eighth month pregnancy. Fetus presented by the head in II position. Body of uterus pressed forward, contraction ring can be recognized. Head advanced deep in pelvis. No abnormal condition in abdomen, especially no tumor near uterus at superior strait. External genitals those of a pluripara without abnormality. By vaginal examination the finger comes, immediately behind the vaginal entrance, upon a bullet-shaped tumor, giving the impression of a head covered with tissue several millimetres thick. The covered tumor was to the right, a few centimetres above the entrance to the vagina in the right vaginal wall. To the left, front and back the examining finger passed between tumor and vaginal wall high up over the greatest periphery of the head, and reached, to the left, a normal sized firm cervix, the orificium externum admitting the end of examining finger. On the left wall of the tumor was recognized an opening one centimetre in diameter, through which the distended membranes were bulging. This opening was enlarged by pressure against its margin in a few minutes to such a degree that its edge was drawn back over the periphery of the head. The membranes then free advanced to the vulva. After their rupture the birth followed in two powerful pains. The placenta was adherent and separated manually. On entering the hand a two to three centimetre thick lax projecting fold was recognized, extending from the anterior to the posterior wall of the vagina and reaching nearly to the introitus, from thence uniting as above. Through the opening thus formed the hand entered a right vagina with its vault and relaxed cervix, through which it passed into the right uterine body, where the placenta was found and separated. The uterus contracted well, walls of normal thickness. To the left the finger passed through the fissure and reached a second vaginal vault and cervix, with its orifice transversely lacerated, edges cicatricial, admitting the end of the finger and communicating with a left uterus, which was perfectly separated from the right. The right uterus was placed posteriorly, but could readily be brought into antiflexion. Between the cervices two fingers could readily be placed. By combined examination no union between the uteri was to be recognized, each was for itself freely movable.

The puerperium, with the exception of a mastitis, was normal. On the third day there was discharged a reddish-gray membrane, eight to ten centimetres in diameter and a few millimetres thick, with an opening in the middle. It was composed microscopically of decidua from the left uterus. The involution of the puerperal uterus was normal, at the same time considerable loss of size in the non-puerperal left uterus.

Separation of the Symphysis Pubis in a Forceps Delivery.

Marschner (*Centralblatt für Gynäkologie*, No. 31, 1892), while discussing symphyseotomy before the Dresden Gynecological Society, referred to a forceps case which he was

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managing about two years ago, when the patient, under chloroform, sprang up and threw herself on her side. He found that the symphysis pubis had parted. The urethra could not be felt on the first day. He applied three very stout silver sutures, passing them through the bone on each side. On unfastening the patient's legs, one suture snapped and the other two came undone. The symphysis was again sutured with four-fold, twined silver wire and silk, which held. At the time the case was reported the woman was in good health and pregnant. She had no trouble in walking, but in bad weather, or after walking over heavy ground, suffered from neuralgic pains in the pelvis and left leg. Marschner left the sutures in place about three months.

Separation of the Recti After Pregnancy and Labor; Operation.

Muratow (*Vratch*, 1892, p. 1015), gives the notes of a case of separation of the recti in a delicate woman, aged 19 years. Five months before she had been delivered with forceps, after having been in labor thirty-six hours. She was very anemic, and the abdominal walls were so thin that the viscera could be distinguished with ease by palpation. The patient was chloroformed and an incision made through the integument, when the peritoneum, pushed forward by the intestine, came in sight. The inner borders of the recti, drawn back by the action of the obliques, were found with great difficulty, the edges vivified and united by silk sutures placed close together. Four stouter sutures were then passed through the substance of the muscles further from their edges and through the other layers of the abdominal walls. On the ninth day the sutures were removed. The wound had united except at the lower end, where a small fistulous tract remained; a piece of silk suture came away six months later. Fourteen months after the operation the patient remained free from any sign of a recurrence of her complaint.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.

ASSISTED BY

WILLIAM A. CAREY, M.D.

The Value of Electro-therapy upon Fibro-myomata.

Martin and Mackenrodt (*Deutsche medicinische Wochenschrift*) give the result of their experience with electricity in the treatment of uterine fibroids. Thirty-six cases were subjected to the Apostoli method and about 55.5 per cent. of them were benefited as far as certain conditions were concerned. The hemorrhages and pain were lessened and the general health improved. In twenty cases the menopause occurred during the treatment and retrogressive changes occurred in the tumors. In no case did the tumor disappear, nor ever, to a certainty, diminish in size. In 44.5 per cent. of the cases there was no improvement at all. In many of them the condition grew steadily worse during treatment and three cases died. Two deaths were due to septic peritonitis (laparotomy being performed in one case with removal of the suppurating mass), and one died from profound anemia due to repeated hemorrhages.

While recognizing the benefits to be derived from electro-therapy in checking hemorrhage and in alleviating pain, the authors are not disposed to recommend its general adoption. They have found that the length of time improvement lasts will depend upon the proximity of the menopause, and in such cases the application of electricity may be serviceable in checking profuse bleeding and in relieving pain until the menopause sets in and causes some atrophy of the uterus and its appendages. But, in general, they consider the use of electricity in treating these tumors dangerous, because of the complications fre-

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quently present, viz., cystic or malignant changes in the tumor; cancer of the uterus; or disease in the adnexa. Oftentimes these conditions cannot be appreciated until the abdomen is opened. Their policy in dealing with these tumors is to let them alone if they are small and not giving rise to symptoms. Use electro-therapy as a palliative measure in a few selected cases, but operate in the majority of cases. They report twenty cases of laparo-hysterectomy done for this trouble, with two deaths (neither from sepsis), and fourteen cases of vaginal extirpation, with no death.

Carcinoma Uteri in the Negro.

Middleton Michel (*Medical News*, October 8, 1892) tabulates the result of his investigations upon this subject for the past fourteen years. His conclusions are directly opposed to the views generally accepted, and prove that uterine cancer is almost as prevalent among the black as among the white women, the ratio being 1 5-7 cases among the white to 1 3-7 cases among the blacks to every thousand of the population. The investigations extend from the year 1878 to 1891 inclusive, and comprise 101 cases, forty-eight among the whites and fifty-three among the negroes. Dr. Michel has been connected with the Board of Health of Charleston, S. C., for a number of years and has had exceptional opportunities for studying this question, and is satisfied that his statements are correct. He has repeatedly found carcinoma associated with fibroids of the uterus, as well as alone. There is no attempt made to distinguish between true carcinomata, cancroid and malignant papillary tumors, but the term carcinoma has been used in a somewhat generic manner. In considering the question of supposed immunity of the negress from uterine cancer the query arises, Why should it be so? Clinical facts show cancer to occur in other parts of the negress—in the breast, stomach, kidneys and rectum, and when we consider the unbridled licentiousness of this people, their profligacy, the attendant traumatism about the cervix in women who have borne many children, "it is, to say the least, scarcely to be supposed that the black race should be exempt."

Ovariotomy in a Patient Seventy-two Years Old, Complicated by Parotitis.

Fancourt Barnes presented to the British Gynæcological Society the history of a case recently operated upon by him with a successful issue. The cyst contained over a gallon of fluid and about four pounds of solid material. There was a broad pedicle and no adhesions. The operation lasted twenty-two minutes. Primary union occurred in the abdominal walls and patient left hospital five weeks later. On the third day following operation the left parotid gland became swollen, hard and painful. Two days afterwards the gland was incised to determine the presence of pus, but none was found and the inflammation disappeared a few days later. Referring to the complication of parotitis with ovariotomy, the writer quotes from Mr. S. Pagent's paper, "Parotitis after Injury and Disease of the Abdomen or Pelvis." This observer had collected 101 cases of this form of parotitis. In about one half of these cases the parotitis had been produced by such slight and transient causes as menstruation, pregnancy, or even the introduction of a pessary in the female, and in the male by a slight blow on the testicle. Bland Sutton has collected twenty-two cases of ovariotomy performed upon patients over seventy years of age.—(*British Gynæcological Journal.*)

Hysterectomy without a Pedicle.

S. C. Gordon (*American Gynæcological Journal*, August, 1892) describes his method of performing supravaginal removal of the uterus as follows: Begin by ligating as much of the broad ligament as possible by a strong catgut ligature on each side, then dividing between it and the uterus, controlling hemorrhage from the uterus by hemostatic forceps Then proceed down, from this point, the entire depth of the broad ligament with an over-and-over suture of the same material, closing the folds of the ligament as it is cut from the uterine side. He does this generally with a strong curved needle, and as he approaches the uterine artery, he dips below the point that has been divided, thus securing the artery within the suture before division. At this time he divides the peritoneal covering of the uterus in front

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and behind and carefully dissect off until he reaches the vagina, having separated the bladder and utero-sacral attachments behind. These flaps in front and behind are easily held by forceps until the attachments of the broad ligament on each side are carefully and completely removed and secured by the suture, which is then continued across the vaginal opening by uniting the flaps of peritoneum. This closes the vagina and the pelvic cavity is entirely shut off from septic influences. The most troublesome part of the operation consists in securing the uterine artery and dissecting off the anterior attachments of the bladder and vagina, especially when the cervix is very long. When the tumor involves the cervix the difficulty of relieving the attachments is much less. By this method the entire organ is removed and no pedicle left to give rise to anxiety. In one case the writer lost the patient from secondary hemorrhage occurring at the end of the second week. The mortality rate has not been any higher in the writer's experience with this operation than it has been in laparotomy for any other cause.

INFRAPERITONEAL DISPOSITION OF THE PEDICLE IN SUPRAVAGINAL HYSTERECTOMY.

JOSEPH GRAHAM (*American Journal of Obstetrics*, September, 1892), while admitting the merits of the extraperitoneal method of treating the stump in supravaginal hysterectomy, contends that there are too many objectionable features about the plan and its results to make it a very desirable operation. The chief objections noted are: the liability to hernia at the site of the stump; the interference with the functions of the bladder, as well as the dragging of the stump on the abdominal wall; and last, but not least, the impossibility of fixing the stump in the abdominal wound without violating the principle of abdominal surgery, which teaches the restoring of all the parts, as nearly as possible, to their proper relations with each other before closing the abdominal cavity. The operation advocated by the writer as most nearly perfect is after the method of Goffe. A case of multiple fibromata of the uterus is detailed in which a successful operation was performed after this method. After exposing the tumor and finding it free from adhesion to the bladder, he made an elliptical incision *through the peritoneum*, across the front and posterior surfaces of the tumor successively and dissected the peritoneum down below the internal os uteri, to make flaps for covering the stump. After clamping the cervix down to the bottom of the flaps, by passing a strong elastic ligature around it, amputation was readily accomplished. The stump was transfixed within the flaps of peritoneum by strong Chinese silk and tied on either side like the pedicle of an ovarian tumor, each knot being cut short. The stump had been cut so low down, to get below all the fibroids, in this case, that it did not require any trimming. Then, beginning at the upper border of the left broad ligament, the raw surface was covered in by an over-and-over continuous silk-worm gut stitch down its entire width; then over the top of the stump, the peritoneal flaps having been firmly and closely stitched, the suture was continued up the width of the right broad ligament to its free border, so that the bottom of the pelvic cavity presented only a smooth peritoneal surface, with the continuous line of silk-worm gut suture running across from side to side. After the fifth day the patient's convalescence was uneventful. During the fourth and fifth days the temperature rose to 102° F., due to an accumulation of broken down material, blood and pus in the cervical canal. This was washed out after dilating the cervix and the temperature fell. These irrigations were continued for eighteen days and the patient was dismissed at the end of four weeks. Reference is made to the fact that Goffe had modified his operation in one case by introducing into the cervical canal a drainage tube before closing the flaps. Keene is also quoted as saying in a letter to Goffe that he had modified the operation by ligating the uterine and ovarian arteries in the broad ligaments instead of transfixing the stump with silk ligatures. The writer suggests the use of a metal drainage tube, V-shaped and open at the upper end, to be inserted in the cervical canal and remain as long as required. When not longer needed it could be easily removed by compressing its free ends by slender forceps and dilating the cervix.

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Gonorrheal Puerperal Peritonitis.

F. B. Robinson (*North American Practitioner*) describes gonorrhea as an infectious, unlimited, progressive disease of the cylindrical epithelium of the generative tract. The habitat of the gonococcus is cylindrical epithelium; it does not thrive so well in sqamous epithelium or connective tissue. The walls of the urethra contain numerous glands, which are lined by cylindrical epithelium, although the urethra is lined with squamous epithelium. Sänger's assertion respecting the impossibility of gonorrhea producing suppuration in the appendages is not supported by the experience of the majority of observers. Suppuration may depend upon mixed infection, as was pointed out by Bumm. The investigations of Wertheimer showed the gonococcus to be present in a number of cases of pyosalpinx and in sixteen cases no other form of bacteria was present. The same observer proved that gonococci could penetrate the ovary and form an abscess there.

Gonorrheal puerperal fever depends chiefly on the exacerbation of a chronically or recently inflamed gonorrheal organ. Conception and gonorrheal infection may occur at the same time, and gonorrheal puerperal fever occur at the abortion or labor. The tendency of the gonorrheal poison to produce sterility limits the presence of this condition chiefly to primipara. Although gonorrhea usually produces a bilateral lesion and consequent sterility, pregnancy not infrequently occurs from the fact that the trouble has been confined to one side of the uterus. Peritonitis may then occur at abortion or labor at term. The exciting cause of the abortion in these cases is an endometritis of specific origin. When the gonorrheal fever occurs at labor it is frequently due to the rupture of pathogenic cysts, but it is generally the exacerbation of a previously inflamed gonorrheal organ. Sudden death sometimes occurs at the time of abortion or labor due to the rupture of a pathogenic (gonorrheal) cyst, caused by the mechanical pressure incident to parturition.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

A Gas-producing Bacillus (Bacillus Aerogenes Capsulatus) Capable of Rapid Development in the Blood-vessels After Death.

Welch and Nuttall, in the *Bulletin of the Johns Hopkins Hospital*, July and August, 1892, publish the results of a bacteriological study of a case of death occurring suddenly after numerous hemorrhages in a case of aneurism. The case is remarkable because of the discovery of subcutaneous emphysema of the neck, axilla, arms, breast, buttocks, groins, inner side of the thighs, and many bubbles of gas which were found in the heart and great vessels, especially the veins, although the patient had been dead but eight hours in cool weather. The aneurism had ruptured externally by two small openings from which thin bloody fluid mixed with gas escaped. The gas burns with a pale bluish, almost colorless flame, a slight explosive sound being heard at the moment of ignition. No gas was found in the peritoneal cavity.

Microscopical examination of the blood taken from the interior of the vessels revealed large numbers of bacilli 3–5 μ in length, and about the thickness of the anthrax bacillus, the ends slightly rounded, sometimes almost square cut, occurring chiefly in pairs, and in irregular masses and not in long chains. The same bacilli were also present in very large numbers in cover-slip preparations from the laminated clot of the aneurism, the liver, kidney and spleen. In all these situations the bacilli appear to be in pure culture, no other

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species being observed. The bacilli are not motile. They stain well with most of the analine dyes, but often present small unstained spots. They possess a capsule, evident on the stained specimens.

In the liver small cavities, visible to the naked eye, surrounded by degenerated and disintegrated epithelium were found, in whose neighborhood the bacilli were very numerous. In the kidney occasional cortical tubules were found to have desquamated and fatty epithelium was present where the bacilli were numerous.

In sections the bacilli stain readily with all the ordinary analine dyes, and even with hematoxylin. They stain excellently by Gram's method, retaining the color after the nuclei are discolorized.

The organisms are anerobic, and were found to grow deeply in solid agar. The bacilli thus cultivated are identical with those found in the blood and organs. The bacilli are capable of cultivation upon all the ordinary culture media, even potatoes, if the oxygen is withdrawn. The colonies are grayish white to a more opaque white, or even brownish white color by transmitted light, sometimes with a central darker spot. They occur in spheres or ovals, generally more or less flattened, with usually irregular contours from little projections from the surface of the colonies. After twenty-four hours bubbles of gas may appear. These are first seen in the area of growth, but soon are observed throughout the culture media at points remote from it. The gas seems to possess little or no distinctive odor; if any, it is glue-like. In sugar bouillon gas production is plenteous, bubbles collecting on the surface as a foamy layer. The reaction is strongly acid after development is completed. Growth is speedy and abundant in milk which coagulates. In litmus milk, which is decolorized by deoxygenation, the coagulum becomes pink when again exposed to the air. Gas is found abundantly in potato cultures. The bacillus forms no spores. When quantities up to 2½ cc. of a sugar bouillon culture of the bacilli were introduced into the circulation of rabbits, no manifest symptoms were produced; therefore the organism is not considered pathogenic. If, however, the animal be killed a short time after inoculation gas speedily forms from the development of the bacilli in the tissues. Upon this point twenty experiments upon rabbits and a dog were conducted.

As regards the case at hand the writers suppose that the organisms gained entrance through the external opening into the sac of the aneurism and there developed, in the stagnant blood, before death occurred. From this centre they were distributed throughout the circulation, and the condition of the patient, who was not only suffering from great weakness from loss of blood, but also from phthisis, being of no resistance, allowed the bacilli to develop and produce gas, which is thought to be one of the chief factors in bringing about his death.

The Hematemesis of Anemic Young Women.

Henry Handford, in the *British Medical Journal*, September 17, 1892, says: While the statistics of gastric ulcer obtained from post-mortem records show the disease to be not very unequally divided between the two sexes, and while duodenal ulcer, which for practical purposes it is useless to divide from gastric ulcer, is more common in the male, hematemesis is far more frequent in young females, especially if we exclude those cases which are due to organic heart disease, or to cirrhosis of the liver.

While far from denying the common occurrence of gastric ulcer in young women, and the favoring influence of anemia, he is convinced that in numerous instances the hemorrhage arises from ruptured capillaries or small venules and that no ulcer worthy of the name exists.

The rupture of these small vessels is favored by anemia in several ways. Partly by malnutrition leading to fatty degeneration of the vessel walls; partly by general rise of the vascular tension, which has been shown beyond dispute to be common in some forms of anemia; and last, but not least, by backward pressure in the gastric venous circulation from the dilatation of the right side of the heart inevitable in all severe cases of anemia.

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To Filter Agar-agar Quickly.

John L. Schutz, in the *Johns Hopkins Bulletin*, July and August, 1892. To 1500 cc of water, which need not be distilled, 18 grammes of agar-agar are added and the mixture boiled *vigorously* over the free flame in an agate-ware vessel without a cover, for thirty minutes. As soon as the scum accumulates it should be removed. Two grammes of Leibig's Extract are added while the mixture boils. At the end of the thirty minutes remove the flame, and allow the solution to cool to 60° C. Ten grammes of dry Wittes' peptone and five of sodium chloride (C. P.) are added, and also the entire contents of an egg thoroughly mixed in a quantity of water equal to the amount lost by evaporation, and upon testing the reaction will be found strongly alkaline. Carefully add dilute HCL until only a faint alkalinity remains. Boil five or ten minutes longer and filter through the best white filter paper, previously moist. The whole quantity should filter without the use of a hot water or steam apparatus in from three to five minutes, and if not perfectly clear may be refiltered.

MISCELLANEOUS.

THE ACTION OF ALCOHOL AND ITS VALUE IN DISEASE.

The American Medical Temperance Association, through the kindness of J. H. Kellogg, M.D., of Battle Creek, Mich., offers the following prizes:

1st. One hundred dollars for the best essay, "*On the Physical Action of Alcohol, based on Original Research and Experiment.*"

2d. One hundred dollars for the best essay "*On the Non-Alcoholic Treatment of Diseases.*"

These essays must be sent to the Secretary of the Committee, Dr. Crothers, Hartford, Conn., on or before May 1, 1893. They should be type written, with the author's name in a sealed envelope, with motto to distinguish it. The report of the committee will be announced at the annual meeting at Milwaukee, Wis., in June, 1893, and the successful essays read.

These essays will be the property of the Association and will be published at the discretion of the committee. All essays are to be scientific, and without restrictions as to length, and limited to physicians of this country.

Address all inquiries to

T. D. Crothers, M.D,
Secretary of the Committee,
Hartford, Conn.

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CORRESPONDENCE.

"COELIOTOMY," VERSUS "LAPAROTOMY," AS A SURGICAL TERM.

Editors of the UNIVERSITY MEDICAL MAGAZINE:

GENTLEMEN: When you perform an abdominal section, and report the case; under what scientific term do you describe the operation? You probably call it a "Laparotomy," because hundreds of operators are in the habit of using the same word, or its synonym, in a dozen countries and languages.

Where did this term originate? You say it has a Greek derivation (the language of Greece having been the tongue of the first anatomists) and comes from two words, *lapara;* and *tomæ*, to eat. Now, what did the Greeks call the *lapara?* It was certainly never the abdomen.

Did you ever look carefully into an ancient Greek anatomy to find out what the abdomen was really called in their language? The word *belly* appears ten times in the English version of the New Testament; did you ever note that the original Greek has the word *koilia*, and never *lapara*, in these ten places?

Rufus, of Ephesus, a distinguished physician and writer, born A. D. 112, wrote a paper entitled "Names of the Parts of the Human Body," in which he has this significant sentence: "The *omphalos* (navel) is the hollow which occupies the middle of the *koilia*, where we cut the veins that nourish the fœtus; the middle part of the hollow is the *akromphalon*" (top of the navel).

"Lapara" is a very old Greek term, and was applied in the time of Hippocrates to the parts between the short ribs and the iliac bone (the flank), and scores of old lexicographers have thus defined it. The operation for lumbar hernia, or laparocele, was a true laparotomy; and so, also, is that of lumbar, or laparo-colotomy. The term *lapara* originally meant a hollow, and was for this reason applied by the early anatomists to *the hollow of the waist.* It was never used to designate a convexity.

The misapplication of the term "laparotomy" commenced in the year 1811 in the medical thesis of a Wittenberg student of the name of Fiedler, who wrote in Latin under the title "De Laporatomia." He had witnessed a true laparotomy performed, on October 17, 1810, upon a man of 50 with a diseased colon, as he lay on his right side. Fiedler wrote again in 1817, and took it upon himself to coin such distortions as "laparo-gastrotomia," "laparoraphia," and "laparo-hysterotomia"—his desire seeming to be to supplant the term "*gaster*," which really meant the belly, by the word "lapara," which a careful investigation would have taught him was not its Greek synonym. The mystery is how an error of this kind ever made the progress that it has in leading the medical world astray.

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"*Koilia*" being the Greek word for abdomen, the natural synonym of gastrotomy in its old meaning is "coeliotomy," pronounced soft (se-le-otemy). This is not a new coinage except as to its terminal, for we have long had *coelioparacentitis* for tapping the abdomen. The term coeliotomy has been adopted by Professor Sänger, of Leipzig; by Dr. J. Greig Smith, in his *Abdominal Surgery;* by Professors Keen and White, in their *Text-Book of Surgery;* and by a number of well known medical writers. This adoption gives us the compound terms *coelio-hysterotomy* (Cæsarean section), *coelio-hysterectomy* (exsection of uterus through the abdomen), *puerperal coelio-hysterectomy* (Porro-Cæsarean operation), *coelio-nephrectomy* (abdominal exsection of the kidney), etc.

What characterizes the present position of our condemned term is its wonderful tenacity to hold in the nomenclature of gynecological writers who have admitted the error of its application in abdominal surgery. Two years ago I published a classical pamphlet on the subject and sent it to prominent writers in thirty different countries. I also sent a copy to every Fellow of one of our leading national medical societies just before it met in annual session in 1890, and their letters attested its effect upon their sense of reason. It convinced them that *lapara* was not the abdomen and that *koilia* was; but it did not break up the habit of use, as shown by the fact that four papers entitled "laparotomy" appeared in their *Transactions* for 1891, and the term was time and again made use of throughout the volume, but no one said "coeliotomy" as much as once. The old rut is so easy to run in, and the laparotomy wheel will get in. It took eighty years to propagate the error, and it will take time to correct it.

Yours respectfully,

ROBERT P. HARRIS.

329 S. 12th St., Philadelphia,
September 26, 1892.

THE ACTION OF CHLOROFORM.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

Dear Sirs:—Having been asked to undertake a research at the expense of the Government of his Highness, the Nyzam, of Hyderabad, India, with the object of reconciling, if possible, the conflicting views concerning the action of chloroform, I am anxious to receive, from American physicians and surgeons, records of any cases in which it was noticed that the heart stopped beating *before* respiration, or respiration stopped *before* the heart.

Notes concerning any such cases will be considered strictly confidential, provided the reporter states his desire that his name shall not be mentioned in the report of the research when it is finished. Otherwise due credit will be given for any information received.

Very truly yours,

H. A. HARE,

Jefferson Medical College, Philadelphia, Pa.

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UNIVERSITY
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VOL. V. DECEMBER, 1892. No. 3.

ORIGINAL ARTICLES.

CONTRIBUTION TO THE ETIOLOGY OF BERI-BERI.[1]

By Albert S. Ashmead, M.D.,
New York.

Through the courtesy of Captain J. R. Durke, of the bark "H. B. Cann," whose crew were prostrated by beri-beri in the tropics, two of them dying of the disease, and of Messrs. Edward Hincken and Son, the consignees of the cargo, I have been enabled to extract the following data from the ship's log-book, to which I add some informations otherwise imparted.

The bark (registered 1,299 tons) sailed April 27 from Ilo-ilo, Philippine Islands, with a cargo of raw sugar 70,284 sacks. Let me say that this is a considerable freight, for a sack amounts to sixty-six pounds, which gives a total amount of over 2,200 tons! Fermentation in such a mass of sugar must have set free an enormous quantity of gases. The sugar was mostly No. 3, the lowest grade and the most liable to fermentation. The fact that the cargo in question came from Ilo-ilo to the United States shows it to be of the lowest grade. The Philippines send us but their meanest wares, strange as that may be, and for some unknown reason, always from Ilo-ilo. Nos. 1 and 2 go to Germany and England always from Manilla. Her crew consisted of fifteen men. On May 22 bad weather set in; there were eighteen inches of water in the well in twelve hours, a condition which necessitated pumping every two hours. On June 5, heavy squalls; the bark ships large quantities of water; this weather continued until the 20th. Even when the squally weather had ceased, the pumps were worked every two hours. On July 15 a terrific storm struck them, and continued until July 20. The decks for twenty-four hours were continually filled with water. A strong southwest current (sixty miles an hour), lasting many days, set in. I observe here that it is popularly supposed that there is a connection between the southwest winds and beri-beri.

[1] Communicated to the Sei-I-Kwai, or Society for the Advancement of Medical Science in Japan.

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But the current, called southwest, is the current naturally due to the emptying of the waters of the Indian Ocean into the South Atlantic, around the Cape of Good Hope. It flows, therefore, toward the southwest and not from the southwest. In fact, throughout the voyage, the bark never met the southwestern trades. The following data show that the bark had less to deal with trade winds than vessels usually do. When she left Ilo-ilo, April 27, the northeast monsoons were becoming very weak; they carried the ship to the Basilan Channel. The captain tried to get through Macassar Strait, but the wind was too weak; so he changed his course and came down Molucca passage, with variable winds. He was forty-five days getting free of the East Indies into the Indian Ocean, through Lombock, an extraordinarily long passage. He had southeast trades, strong and squally, to Port Natal. He had ten days hard weather around the Cape of Good Hope, three days of which there was a heavy gale. From the Cape of Good Hope he had variable winds and calms until he struck the southeast trades in the South Atlantic, August 7, which carried the ship past the equatorial line, 3° N. lat. Then he had calms and doldrums until September 11, on which date, lat. 9.39 N., long. 44, 21 W., he found southeast winds prevailing instead of the usual northeast trades which he should have met here. These carried him to the North Atlantic and to port. Considering these facts and the comparatively violent outbreak of beri-beri on the vessel, we must conclude that the etiological importance of the southwest trades in beri-beri has been very much exaggerated, if it is not altogether imaginary. Of course they have, clearly, an influence, inasmuch as they bring wet and heavy weather, which wet and heavy weather would be, I think, as innocent as the winds themselves, if the really toxic action of carbonic emanations was absent.

Bodily exhaustion has always been considered as an etiological factor in beri-beri. Here is added what, as I just said, is, in my opinion, a much more important factor—the influence of carbonic gases. One month after they left Ilo-ilo the water got into the hold, and the sugar began to ferment. Strong and stifling fumes permeated the vessel, which continued until she got into calm water, at Norfolk, on September 3 (this happened—the observation is not without its bearing—in latitude 2.40 N., longitude 41.28 W., near St. Helena, 139 days from the Philippine Islands, 2.40). On the 111th day of the fermentation, on the very edge of the range of the trades, Russell, a seaman, was laid up with swollen limbs. He died September 23. The pumping, meanwhile, continued every two hours. On September 16 (latitude 13.27 N., longitude 52.14 W.), the carpenter was laid up with swollen feet. September 25, Andrew; September 26, Peterson; Sepember 27, Kempt, seamen, were afflicted likewise. The carpenter died October 9. At that date all were more or less ill, except four. The work at the pumps was being continued with fewer hands. A signal of distress was hoisted October 10. Five inches of water got into the well every two hours. October 11 (on the 167th day of the voyage) the tug "Rescue" came to their relief, took the bark in tow to Hampden Roads, where six men sick of beri-beri were left in the hospital. A new crew was shipped, and the vessel having been well pumped out was towed to New York harbor. It has been said somewhere that there had been famine on board and a scarcity of

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water. This, the captain says, was not the case. He had plenty of water, as appears by the following notation in the log-book: "May 20, filled up starboard water-tank on deck; August 30, put about 150 gallons of water into the starboard tank; September 16, saved about 300 gallons of water; September 19, five feet of fresh water in the tank." And the water was good throughout. Vegetables were the only thing wanting; rice and ship's bread (hard tack) were plentiful. They had Australian beef, of which they had broached seven casks (a cask is about 300 pounds) and one cask of pork (200 pounds). I extract again from the log-book the following insertions, to show how far a cask of beef goes: "April 27, broached cask of beef; May 17, beef; May 29, pork; June 8, beef; July 5, beef; August 17, beef; September 14, beef; October 3, beef." It is just a little inferior to American beef. Besides the salt meat, the men had, twice a week, fresh beef, packed in tins, also lime juice every day, and fresh bread, baked every day. The ration table was that required by the English service. The crew consisted exclusively of Europeans. The captain himself is a Nova Scotian, and the bark flies the English flag. The disease undoubtedly was beri-beri; so I hear from Surgeon J. C. Perry, of the United States Marine Hospital Service, Norfolk, Va. Being English, the patients were placed in charge of Quarantine Medical Officer Dr. W. A. Thom, Jr. All of them have now recovered. One of them, the first mate, reached New York by rail and met the ship on her arrival. There had been eleven men sick; four had resisted: the captain, aged 40; a Londoner, aged 25; the steward—a German—aged 60; and the second mate—an Englishman—aged 35.

I extract from the log-book: "October 9, Andrew and Peterson both laid up, which makes it very hard for the rest of us. It takes all hands to take in topgallant sail, or in fact, do anything, as we are getting weak from this sickness that has overtaken us. More water than usual coming to the pumps; mill going almost all the time. Monday, October 10: There are now three men laid up and we have to-day finished the last of our provisions. The remaining of us are more or less affected by the sickness. It is as much as we can do to pump ship with all hands. Hoisted the signal P. H. to a steamer; apparently he took no notice of us. Five inches of water in the well every two hours." Observe that the victuals gave out only the day before they touched port.

I myself visited the ship and inspected the sleeping apartments of the men. The forecastle is on deck; it has twelve bunks in a room fifteen feet long, ten wide and seven high; doors and a scuttle give free ventilation. The bunks were tight-boarded pens, and, of course, would hold gases. The ship's carpenter, who died, slept by himself in the store room; his was a closed bunk, like all the others. The first mate slept alone off the mess room, in the after part of the ship; he contracted the disease.

We have, then, here the following situation: Toxic matters in the atmosphere either directly from the fermentation of an enormous mass of sugar and the formation of the poisonous compounds of carbon (10,000 sacks out of 50,000 up to this time unloaded, have been involved in the process, and it is expected that about one-third of what remains in the bottom of the bark, will be found damaged, that is, about one-fourth of the whole cargo, 500 tons, has suffered),

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or by a decomposition of the air depriving it of part of its oxygen. We have a wet trip the very weather in which beri-beri or kakké flourishes in Japan. We have muscles and peripheral nerves more or less exhausted by the pumping work rendered necessary by the leak. We have, therefore, an image of the disease, accompanied in the most manifest way by all its etiological factors which leaves nothing to be desired.

The following facts relating to the export of sugar will, perhaps, be of some interest. Captain Durke tells me that all sugar cargoes, during the voyage, blacken the paint. The ship's paint was black from sulphuretted hydrogen. I tested some of it. He says, however, that unless water gets into the cargo the sugar will not really ferment. He has carried many cargoes from the West Indies, the Barbadoes, and all gave off the blackening gas; but he had never a ship ferment before, nor had he ever an outbreak of beri-beri. Therefore, the fermentation is not the cause of the formation of the sulphuretted hydrogen. The agent Mr. Hincken, a sugar broker—one of the consignees—says he has many times entered the holds of incoming sugar ships and always found them sweating from the heat in the hold. It must be noted that in the East Indies lime containing sulphur is used. In the icery process, bi-sulphite of lime is used in the preparation and tempering of sugar for export to prevent fermentation; hence the blackening gases. In the preparation of the cane juice, for export sugar in the Philippines, no molasses is formed. This is the only difference in preparation between it and West Indian sugar; in the latter, there is always a formation of molasses. It is the addition of an excess of lime to sugar which prevents the formation of molasses, by the more abundant production of saccharates, hence, if the lime is very sulphurous, we naturally have an excess of sulphuretted hydrogen developed. The sulphuretted hydrogen, if you consider these data, can have nothing to do with the disease; it blackened the walls, that is all. The captain has had walls blackened frequently without beri-beri. One question in passing, why did beri-beri never occur in any ship exporting sugar from Brazil and the West Indies? The cause may be that the trips of these vessels are comparatively short. Moreover, peculiar care is taken of the Brazilian sugar, for it is known to be a very poisonous stuff, that is, to ferment very easily.

Each of the facts mentioned above—that is, emanations of carbonic compounds, exhaustion, tropical wet weather, may not by itself produce beri-beri. But here we have them united, and their union is strong enough to overcome the resistance of Europeans.

I have elsewhere affirmed my belief in the operation of carbonic compounds in the production of kakké in Japan.[1] I think that I have a right to consider this case as strongly corroborating my theory. Dr. Takaki, while admitting the action of the carbonic compounds, supposes them to act in a quite different way from that in which they have evidently acted in this case. He believes carbonaceous food to be the cause of the intoxication. Here the effect was produced by inhalation; this is evident by the indisposition of the ship's dog. That animal, as well as the four men who had not contracted beri-beri, was

[1] UNIVERSITY MEDICAL MAGAZINE, January, 1891.

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continually vomiting. If the gas operated to make these beri-beri-free men sick —and it was undoubtedly the gas—it was by being inhaled. Now why should the gas not have produced the disease in the others in the same manner—that is, by inhalation? This does away with the theory of beri-beri intoxication through carbonaceous food.

Dr. Takaki claims to have eradicated kakké, which is the same as European beri-beri, from the Japanese navy by the elimination of rice from the diet of the men. That he has eradicated it, I believe; but that it is due entirely to the change in the diet, I do not believe. The men have been, at the same time, removed from the influence of those fumes of carbon amidst which the Japanese live and breathe. In Japanese houses charcoal is continually burned for heating and cooking, and the natural humidity of the hot season keeps over everything a deep layer of pernicious gases. In the new navy the men are not exposed to the same influences, their heating being done by steam or coal. The fact that the removal of the beri-beri patients to higher altitudes, where the air is pure, results in improvement, is proof positive that the poison is inhaled. This fact—that is, the advantage of altitude—must remind most readers of that unfortunate Neapolitan dog, who inhales the oxide of carbon of the "Cave of the Dog," for the instruction and amusement of the visitor. The gas, which in this grotto issues from some fissures, is so heavy that it remains in the inferior part of it, and does not reach the nostrils of men; but the dog, breathing in the nether layers, falls down at once in a paroxysm of asphyxia.

It is my opinion, if similar changes in the heating methods to those which Dr. Takaki introduced into the navy were adopted by the people at large, the benefit conferred on the navy would become a general, a national one. They have only to stop the burning of charcoal. That Europeans in Japan rarely contract beri-beri is partly explained by the fact that they are not exposed to charcoal fumes in their houses.

However, I do not contend that inhalation of carbonic gases is the only etiological factor of beri-beri. These factors are necessary: weakness, produced on the one hand by a feeble, non-albuminous diet, incapable of maintaining the natural resistance of the body to morbid influences, or by climatic or other like influences, debilitating the muscular fibres and peripheral nerves, and the *toxic influence itself*, that is, the presence of carbonic gases when it continues for a sufficient time.

The temperature in the ship's cabin, during nearly the entire voyage, was over 80°; in the sun in the Indian Ocean and tropics, it was as high as 126°. In Japan kakké occurs in the season when the sun is very hot and the air very damp, and the days when these conditions are particularly oppressive, the patients are regularly worse.

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ERGOT AND THE OBSTETRIC FORCEPS.

By Traill Green, M.D.,
Easton, Pa.

Medical students under instruction during the years near the end of the first third of the present century were cautioned as to the use of ergot because of poisonous properties of the drug. The belief that it was poisonous originated in the reports of epidemics of dry gangrene and other diseases which, it was supposed, occurred from the use of bread made of rye flour which contained ergotized rye ground up with pure grain. It was believed for many years after the time referred to above, that the long continued and free use of ergot was dangerous, even when no perceptible effects of its poisonous properties were discovered. The profession for some time past seems not to hold any idea of the kind, and free doses daily and for many months are now administered. We find but one case on record in which the use of ergot produced gangrene. Dr. Phillips,[1] of London, says: "I have seen one case in which gangrene of the hand was plausibly connected with such doses (one or two drachms or more of liquid extract every two or four hours for many days), given for hemorrhage from cancer of the uterus. It was the only remedy which had much power in this case, and the bleeding recurred when it was omitted."

While there was fear that ergot was an unsafe remedy in the treatment of disease, there seemed to be less fear of its upon the child action in parturition. It is true that directions were clearly given by obstetric teachers as to the conditions to be observed before using it, such as rupture of the membranes, a dilated or dilatable os uteri, relaxed condition of the soft parts of the woman, and a presentation of the child that would not interfere with its passage through the pelvis. This was very plain, but it is doubtful whether these directions were so carefully observed that evil effects did not follow to the child. In the haste of business the physician, it is probable, did not wait as long as was necessary to make the use of the remedy safe.

Dr. Stearns, of Saratoga County, N. Y., first called the attention of the profession to the properties of ergot which he supposed would make it useful in obstetric practice. His article appeared in the *New York Medical Repository*[2] in 1807.

His paper attracted the attention of physicians, and the use of ergot soon became very general, and it took the place previously occupied by the obstetric forceps. This is very singular when we discover that for some time past the forceps have displaced ergot in obstetric practice.[3] Dr. Dewees says: "I am certain that I do not use the forceps once now where I used them formerly ten times." Ergot was used in Germany by midwives probably long before the profession had knowledge of its action in labor. Dr. Lorain, of Phillipsburg, Pa., met an old German midwife who used ergot in parturition and told him that she had used it in Germany, whence she came, many years before he met her.

[1] Materia Medica and Therapeutics. By Charles D. F. Phillips, M.D.
[2] U. S. Dispensary.
[3] Dewee's System of Midwifery, Fifth Ed., 1832.

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Ergot had not been used in parturition in labor twenty years before ill effects were observed from its use. Dr. Holcombe addressed a letter to Dr. Dewees, March 21, 1825, in which he writes: "Your zeal in proscribing the use of the crotchet will doubtless obtain, as it certainly merits, the plaudits of your brethren—at least, of the more enlightened portion of them. But if the use of the terrible instrument just named be as reprehensible (and who will presume to deny it?) as you have represented it, how much less so, or rather, how much more so is the intemperate use of an agent which sacrifices fourfold, if not a twentyfold greater number of victims? More children, I am satisfied from what I have seen and heard, have already perished by the injudicious use of ergot, during the few years which have followed its introduction into the practice of this country, than have been sacrificed by the unwarrantable use of the crotchet for a century past! This, if correct, is a most serious fact, and of its truth I do not entertain the slightest doubt."[1] But the writer says, "he has used it constantly, and always without injury to the mother or child, administering it in very small doses—say, from two to three grains, which I repeat as often as may be necessary." It is plain that he saw ill effects from the doses usually employed, for he wrote: "For some time I used the scruple doses, or corresponding doses, of the decoction, which I am afraid are everywhere yet too common; but soon abandoned this practice in consequence of several demonstrations of its impropriety." We remember very distinctly when the teaching of the best obstetricians was that ergot should not be used while the pains were active and sufficient to terminate the labor, though some time might elapse before the labor would be terminated. Some teachers, we learn, forbid its use during labor, and prescribe it after the birth of the child to produce contraction of the uterus and so prevent hemorrhage.

As already mentioned, ergot was much employed in practice and the forceps almost entirely laid aside. Now ergot is but seldom used in parturition, and the forceps more generally used than they were some years ago. The writer knew a practitioner, who practiced about fifty years, who said that he had never used the forceps, though he had a large field of practice. His patients, in a rural district, had well-formed pelves, or the doctor was a physician who was willing to wait while the case was progressing. The teachers gave instruction, as in the case of the use of ergot, that the membranes should be ruptured, the os uteri dilated and the soft parts of the mother relaxed. In the use of these agents they were very careful to instruct their pupils as to the proper use of them, and it is interesting to read in their published works how careful they were to withhold their use until the proper conditions were present —allowing hours to pass before they resorted to their use. We are fully convinced that there was great abuse of ergot for many years, and we believe the same is true of the forceps at this time. It is quite common now to hear medical men say, Why not use the forceps and save suffering to the woman in labor? when it seems that the question really is, Why should *I* wait when I can end the case and go home? We think this was the question when ergot

[1] Ibid.

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was much used and we think it is so now when there is a desire to terminate the case, more for the doctor himself than for the patient. There are dangers for the child in the use of ergot, and danger for the mother and child from the untimely use of the forceps. This history of the change which has occurred in professional practice may be of use to the young practitioner.

GRANULAR CONJUNCTIVITIS.

By James Wallace, M.D.,
Assistant Ophthalmic Surgeon, University Hospital, Philadelphia.

(Concluded from page 103.)

The varying susceptibility of different individuals to the infection of granular conjunctivitis suggests at once to the mind the possibility of a peculiar tendency in some individuals toward the disease. The influence of any cachexia would render the resisting power of the individual less to any infection; in the present case, therefore, we are not surprised to see among the victims of the disease, children with the typical face of syphilis—namely, depression of superior maxillary bones and enlargement of the upper lip and alæ of the nose. This may be only a coincidence, as such children are the most common inhabitants of asylums. Rheumatism seems especially prone to chronic disorders of the conjunctiva, sometimes characterized by disseminated deposits of chalky material, at other times by a chronic inflammation attended with secretion and formation of granules. I have one case in mind in which this has lasted for years; with this is frequently associated nasal catarrh, whether as a coincidence or as an outgrowth from the same cause, is not evident. Granular lids being usually a concomitant of poverty and squalor, the exact value of its relations to the other diseases of want and misery is hard to determine. It is difficult to form an opinion regarding its contagiousness. In an orphan asylum which I recently visited about eight or ten children, in a school of 500, were affected, the rest were free. The sanitary arrangements appeared to be complete, such as separate towels for each child, and washing utensils with fresh water in abundance; still these alone will not avert contagion, as door-knobs and articles that pass from hand to hand are likely to be inoculated with infectious matter, and the common practice of rubbing the eyes with the bare hands, supplies the necessary means of conveying the infection. At this date a former patient, with well marked granular conjunctivitis, presents herself with an infant of 3 years. The child has follicular enlargements on the conjunctiva of the lower lids, but no granules or secretion. The husband has never contracted the disease. The immunity of persons who come in such close contact to those affected with the disease seems to diminish the force of the argument concerning its contagiousness. Nevertheless, I would most decidedly urge the theory of its being a contagious disease.

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Diagnosis.—To separate between a simple catarrhal conjunctivitis and trachoma is not always easy. The disease presents two principal features which give it the name of granular conjunctivitis.

(1) The hypertrophy of the conjunctiva into papillary prominences, large fleshy folds with intervening sulci aptly compared by Noyes to the mucus membrane of a horse's rectum after defecation. The purulent secretion from this is very free. Fuchs likens the appearance of the roughened and congested conjunctiva to a raspberry. According to the same author these papillæ consist of a connective tissue network densely infiltrated with round cells; a very much thickened layer of epithelium covers the papillæ. Even in the sulci, between the folds of conjunctiva, the epithelium is markedly proliferated.

(2) The second characteristic feature of the disease is the enlargement of the follicles of the conjunctiva, forming the so-called sago like granules; it has also been compared to frog spawn. They vary in size from pin-point elevations to oval vesicles one-quarter of an inch or more in size; they are found on any portion of the conjunctiva, but their favorite seat is the retrotarsal fold—that is, the portion of the conjunctiva between the upper lid and the eyeball. They are usually very numerous and only constitute a real disease when their size is somewhere from one-sixteenth to one-quarter of an inch.

The irritation of the eyes from uncorrected errors of refraction, wind, dust, too late hours, or dissipation, is sufficient to produce quite a crop. It is not correct to call this condition granular conjunctivitis, as it is quickly allayed by simple measures and produces none of the dire results of the disease in question. My own opinion is that these enlarged follicles, even when of marked size, should be considered as an entirely different disease from granular conjunctivitis. These masses consist of numbers of lymphoid cells, representing as Fuchs states it a tiny lymphatic gland analogous to the lymph follicles which compose by their aggregation Peyer's patches in the intestine. They are sometimes surrounded by a capsule of connective tissue, or blend gradually into the masses of round cells and connective tissue which constitute the papillary granulations. The follicular enlargements may exist for years without producing any shrinking of the conjunctiva, opacity of the cornea, or disturbance of vision. They are almost always found with papillary trachoma where the conjunctiva is not too much altered from the swelling. This form of conjunctivitis is not the serious one of which I would speak to you.

Granular conjunctivitis that produces such ravages with conjunctiva and cornea is characterized by the papillary swelling of the conjunctivæ and the profuse secretion of pus. The first stage of the disease is characterized by marked swelling of the lids, not so severe as in gonorrheal ophthalmia, and very apt to ocme in waves rising and subsiding, the discharge of pus is never so profuse as in gonorrheal ophthalmia, and not of the yellowish-green color. I think it probable that in this stage the disease is more amenable to treatment, but we rarely see the first stage of this disease, for the reason that most of the patients are treated three or four weeks before they are considered to have anything more than a catarrh of the conjunctiva. And here let me repeat that I think

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it is very difficult to say at this period whether the disease will be a simple catarrh or will develop into trachoma. You will often aid the diagnosis by finding out whether the patient, if a child, has been brought up in an orphan asylum or whether there are other members of the family affected with sore eyes.

Another disease which must be excluded is phlyctenular conjunctivitis, characterized by the appearance of discrete vesicles or pustules, mostly on the conjunctiva of the ball, their number is usually small and the affected area circumscribed. In the second stage of granular conjunctivitis the swelling of the lids subsides, the conjunctiva now exhibits the roughness which gives to it its name in a marked manner, a stringy purulent discharge clings to the conjunctiva of the lids, and the matted lashes and reddened edges still further accentuate the typical picture. The diagnosis here is very simple, you soon arrive at the true condition if you have not appreciated it at first, as mild washes or sedatives are utterly useless, and the disease worries along for weeks and months. In proportion to the exuberance of the granulations will be the degree of change which takes place in the third stage, characterized by the formation of pannus and shrinking of the conjunctiva. The cellular infiltration of the conjunctiva extends to the cornea burrowing between its epithelium and the membrane of Bowman; along with this is developed a vascular network giving to the cornea the fleshy red color to which the name pannus is applied, meaning a cloth or rag, as long as the infiltration is confined by the membrane of Bowman, no opacities are left on the cornea after the subsidence of the disease,[1] but often the membrane of Bowman is broken through and the cellular infiltration extends into the tissue of the cornea, producing permanent opacities. The fate of the granulations is as follows, of the masses of round cells which constitute the papillary prominences, some are absorbed, some converted into spindle shaped cells and ultimately into connective tissue fibres; the development of connective tissue is followed by shrinking of the conjunctiva and tarsal cartilage with incurvation of the edges of the lids, technically termed entropion.[2] This stage is plain enough to recognize, the dryness and roughness of the conjunctiva frequently produce ulcers from mechanical injury, the eyelashes are turned on the ball, the cornea is opaque and the visual acuity reduced to a very low degree.

The clinical picture is so striking that you could not mistake it with anything else, unless it might be the result of some severe caustic, such as nitric acid splashed into the eyes, even then you would have the cutaneous cicatrix to differentiate by. I would urge you most earnestly whenever you see opacities on the cornea, to evert the eyelids and see if there are not granules on the conjunctiva. The bridles produced by cicatrices in the conjunctiva, will no doubt suggest to your minds the strictures which take place in the urethra from gonorrhea.

Treatment.—The remedies *par excellance* of to-day are the remedies of centuries ago, with the exception of corrosive sublimate, which I will more particularly mention later on. All remedies are edged tools. In the hands of experienced and skillful men they produce brilliant results. In the hands of

[1] Fuchs.
[2] Fuchs.

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bunglers and ignoramuses they cause more damage than the disease at which they are hurled. We might just as well expect to get some artistic piece of work by shaking up the tools and the raw material, as to effect any real cure of a serious disease by promiscuously subjecting it to the action of potent drugs. Probably the best of the remedies at our command is the nitrate of silver. I am almost afraid to tell you how to use it for the reason that the indications for its energetic employment are sometimes very obscure. It is preferably used in solution in the manner that you swab the throat and nose, that is, by a wad of cotton wrapped on an applicator and dipped in the solution. To do this the lids are everted and the mop of cotton wiped evenly over the entire conjunctival surface of the lids, an excess of the solution is almost always present; this should be neutralized either by a solution of common salt gr. x ad. f℥j, or a solution of bicarbonate of soda. The strength of the silver solution employed should vary from x to xl gr. to the f℥j of water. It is necessary to use greater caution with the strong solution, and not allow the caustic effect to progress too far. An assistant should stand ready with the salt solution so that no time is lost. On the appearance of a white film over the conjunctiva, the salt solution should be liberally douched in the eye, thus checking the further action of the escharotic. Prolonged use of silver will cause blue staining of the conjunctiva; therefore its use should be interrupted at proper intervals, and some other agent substituted. Another remedy of great value is corrosive sublimate in the strength of 1.5 gr. to the f℥j. It is applied by a cotton swab in the same manner as silver, but requires no neutralizing solution afterwards; it is usually advisable to drop some cocaine into the eye, either before or after its use. The strength of the corrosive sublimate may be varied from 1–500 to 1–120, according to the discretion of the surgeon, beginning with the weaker solutions and increasing the strength gradually if too great, a reaction is not produced. The germicidal value of corrosive sublimate is a rational ground for its local application, and I can testify to the satisfactory results that follow its use. The employment of blue stone for granular lids is said to be as old as the pyramids, and its results are just as good now as then; it is most highly valued by many authorities, and holds second place to no other remedy. The manner of using it is as follows: A crystal of sulphate of copper is ground to a rather blunted point, the lids are everted and the patient bidden to close his eyes. The blue stone is lightly and evenly passed over the surface of the conjunctiva. If there is much fluid in the conjunctival sac, it should be removed first by a cotton swab. This remedy seems to be more appropriate in the later stages of the disease when the shrunken and anæsthetic conjunctiva does not respond to lighter applications; the stimulating effect of blue stone has a greater duration than that of the other two astringents, and produces a marked effect on the vascular condition of the lids. It is always well to associate with the astringents, in case the cornea is opaque, ulcerated or hazy, a collyrium of atropia 1 gr. to f℥ii. The eye will thus tolerate more readily the astringents, and any unpleasant complication of iritis may be speedily observed and combatted. Tannic acid is a good application in the latter stages of the disease, with incurvation of the lids and lashes; it is used in the strength of from 10 to 60 gr. to the ℥j of glycerine.

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There are two other methods to which I must call your attention. The first one is not new, although it was recently brought into prominence by the discovery of the jequirity bean, which contains a ferment capable of producing an acute purulent conjunctivitis. Previous to its discovery, some of the bolder men had placed gonorrheal pus, or the pus from purulent ophthalmia of infants, into the conjunctival sac of cases of chronic granular conjunctivis with pannus. The pannus was often cleared away as if by magic; some of the eyes, however, were lost by sloughing of the cornea. The jequirity bean does the same thing; often produces a brilliant cure, sometimes disastrous destruction of the eye.

In this connection we may very fitly mention a very interesting paper by S. Lindeman, on "Blenorrheal Arthritis."[1] The affection is rare, only a few cases having been gathered. In Lindeman's case—an infant with purulent ophthalmia—the left knee joint was affected on the twenty-first day with a redness and swelling; a puncture made into the joint allowed an extremely small amount of bloody pus to exude, which was found to contain diplococci in moderate numbers, some of them in the cells. Attempts to obtain pure cultures of these in blood serum failed, as the ordinary microörganisms developed rapidly and overcrowded the others. Lindeman concludes from this, that the specific microbes are destroyed by the common organisms of pus. Applying this to granular conjunctivitis it is easy to comprehend how the extensive suppuration of an acute purulent conjunctivitis might eradicate any specific germ. It is difficult to conceive how in the case of gonorrheal ophthalmia there should be any limit to the development of gonococci when the process was once started, as long as any conjunctiva remained for them to grow upon, unless some such influence as this existed; and if we agree with Fuchs, that granular ophthalmia is a subacute form of gonorrheal ophthalmia, then the development of gonococci not being rapid enough to excite intense suppuration their destruction is only partial and the disease waxes and wanes according as they multiply or diminish in number. Hence jequirity or pusfrom acute blenorrhea intensifies the development of pus microbes and secondarily destruction of the gonococci. At the present time it is not much used.

Another mode of treatment is by squeezing the granulations until they burst and their soft contents ooze out, or first pricking and then squeezing them. Special forceps have been devised for this treatment by Knapp, Noyes, Sattler and others. These gentlemen are very enthusiastic about this treatment, which is somewhat new. It is not suited to all cases, but is especially resorted to in those instances in which the large follicular masses occupy the retrotarsal fold. I think quite as good results in subduing these are obtained by the employment of aristol, iodoform or calomel, dusted into the conjunctival sac from a camel's hair pencil.

We would naturally inquire, How long does it take to cure a case of granular conjunctivitis? Months or years! Oftentimes there is no cure; for the distorted lids form a source of perpetual irritation. Is it worth while treating patients who have passed into this hopeless stage? Yes, it is; they can be made much more comfortable from treatment. They need not visit the doctor every day;

[1] Beiträge zur Augenheilkunde, Heft V.

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they can be given a wash of boric acid to use freely at home and a solution of tannic acid gr. x to the f℥j to apply by a tube once or twice daily; and make weekly or bi-weekly visits to the doctor.

Prevention.—It would not be proper to close this paper without a word concerning the prophylaxis of the disease. The general practitioner sees these things at their birth. Probably this century has taught no truth of greater importance than that of separating the diseased and contaminating individuals from the healthy. It is the home life of the family, of the asylum, of the reformatory, that needs your attention. To use in common articles of such a personal character as towels, wash bowls or beds is nefarious, excepting among people who have a clean bill of health, and they do not from choice commit such flagrant errors. It is the opinion of some excellent authorities that the disease is produced as the result of overcrowding in barracks and sleeping-rooms by the vitiated air. It is obviously your duty to obtain sufficient ventilation for your patients who have homes, and as far as you can influence the controlling boards of asylums and other institutions to demand the requisite number of cubic feet of air for each individual.

UTERINE FIBROMATA—REMOVAL OF TWENTY-SEVEN WITH TWO DEATHS.[1]

By J. M. Baldy, M.D.,

Professor of Gynecology in the Philadelphia Polyclinic, Surgeon to the Gynecean Hospital.

It is not many years since it was almost universally taught that fibroid tumors of the uterus were harmless, and that their presence might with impunity be ignored. Either women or the character of these neoplasms have changed since those times, or there must have been a fearful negligence and indifference to the welfare of many of the sufferers. Possible it is that the profession being only to fully awake to the danger of the only rational treatment, preferred rather to shirk than to face the issue. However this may be, the tremendous strides of abdominal surgery, have put this disease together with many others, within the number of affections which can be cured with comparative ease.

The symptoms to which the affection gives rise are variable and are dependent to a great extent, with possibly a single exception, upon the size and shape which the growth may assume. The fibroid tumor in itself, as long as it remains a true fibroma, will occasion little trouble other than the induction of uterine hemorrhage to a greater or less extent. As it grows, its presence will sooner or later induce irritation of the peritoneal surfaces, thus giving rise to considerable pain and oftentimes distension. The irritation may even amount to an inflammation which is apt to be kept up or relighted frequently or not

[1] Read before the Philadelphia College of Physicians, November 2, 1892.

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according to the amount of exposure to determining causes. Pressure within the pelvis especially, gives rise to very distressing symptoms, even outside of the pain which it causes. The bladder is most frequently irritable and incapacitated for holding the urine for any great length of time. It has been my experience to find this organ many times in a condition of chronic inflammation, the urine being loaded with pus. The bowels are mostly constipated, due to a great extent to the mechanical obstruction caused by the pressure, and it is a matter of surprise to me at times when handling these tumors, how any fecal matter whatever has been able to pass the pelvic brim. Patients carrying a tumor of this class are liable to repeated attacks of peritonitis, attacks which are not always sufficiently violent to endanger life materially, but which render the woman an invalid for weeks and often months. It would seem at first blush that the tumor of a woman who had suffered from one or more attacks of peritoneal inflammation, must of necessity be adherent to surrounding parts. This is not the case, however, excepting where the inflammation is septic or specific. A septic or specific inflammation of this serous membrane, almost invariably leaves adhesions in its train; a simple traumatic peritonitis is apt to clear up without such serious consequences. Although fibroid tumors are apt oftentimes to be complicated by diseased uterine appendages and are thus open to the chances of an adhesive inflammation, yet it is a fact that the majority, even of the complicated ones, are accompanied by few if any adhesions, even after repeated inflammatory attacks.

The amount of suffering attendant upon these growths is, as a rule, in direct ratio to the complications and has little or nothing to do with the size, unless that has become enormous. The sufferings of a woman carrying such a growth, as large as a full-term gravid womb, is frequently not nearly so great as those of one with a tumor which barely rises out of the pelvis.

Much has been written concerning the organic changes in various organs caused by the presence of fibroid tumors. These changes are as often mythical as not. It has occurred to me to find chronic cystitis and more frequently a thickened parietal peritoneum, but otherwise in the twenty-seven uterine fibriods which I have removed, the other organs of the patient have been healthy. In two or three of them, I have found albumin in the urine, but it was evidently due to pressure as it cleared up in all but one case almost at once after operation. In all of my patients with one exception, the kidneys have been healthy. The ureters have never been observed in an abnormal condition; the bowels have been normal and the other abdominal organs have remained unaffected. I find myself, therefore, unable to subscribe to the oft repeated cry of the dangers of irreparable organic changes in the abdominal organs due to the presence of fibroid tumors of the womb. It has been my lot, however, to find frequent sarcomatous change taking place in the tumors themselves—tumors which had formerly been apparently perfectly benign. Diseased uterine appendages accompanying the growth have been observed very frequently, in fact in the majority of those which have come under my notice; pus tubes, hydrosalpinx, old chronic salpingitis with great hyperplastic enlargement of the ovaries, ovarian cysts and ovarian abscesses, have been the most frequent complications. One

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case of broad ligament tumor, or more correctly uterine tumor, which had grown into and between the folds of the broad ligament was complicated by adhesions to several coils of intestines; these being released and the tumor left *in situ* on account of the risks of the operation, the symptoms all subsided and there has never been a return of any of them, it being now more than a year and a half since the operation.

The old methods of treating this disease have not much to recommend them. As applied to many cases of uterine fibroma, they will probably answer as well as anything because many cases require no treatment at all; in other words, the mere presence of a fibroid tumor is no warrant for dosing the patient with purgatives, ammonia, ergot, hydrastis, electricity and similar remedies. It must not be expected that the tumor can be gotten rid of short of surgical methods, and these are to be reserved for special cases. When it comes to dealing with symptoms, however, these remedies all have their place and are capable of doing much good, provided they are used judiciously. Rest in bed, purgation, counter-irritation, hot douches, electricity, etc., will frequently relieve the pain which is most often due to peritoneal irritation and which should be treated on general principles. The curette, especially in small growths, ergot, hydrastis, atropia, electricity and similar remedies come into play for the hemorrhages and will temporarily control the bleeding. If one is able to accomplish this much, control of the pain and hemorrhage, he has often accomplished all that the patients desire, and it would be hard to persuade them into having an operation performed. If the inflammatory attacks are not recurring and the hemorrhage is not excessive, provided the tumor is not so large as to cause trouble by its size, the patient may rest content with her present condition, especially if she be approaching the menopause. It by no means follows, as has been so often taught, that most of these neoplasms cease to grow at this period of life. On several occasions has it been found necessary in my experience to remove the uterus, together with the growth, in women forty-eight or fifty years of age. Yet, an occasional case occurs in which the change of life ends the period of suffering and the growth ceases to cause active symptoms. In view of this fact, if the woman is near the time of her change, it may be worth her while to wait, provided that her symptoms are not too distressing. Each of these cases must be a law unto itself as far as the consideration of surgery is concerned, and yet fairly accurate lines can be laid down along which it will be safe to advise any given patient.

(1) All rapidly growing fibroid tumors in young women (before 35) should be removed; and many of the same kind as late as 40 years of age.

(2) All cases in women under 40, where there is such loss of blood as to enfeeble the general health, and which is not readily controlled by treatment.

(3) All cases under 40 in which there are frequent recurrent attacks of peritonitis.

(4) Cases which have gone several years past the menopause with excessive uncontrollable bleeding or recurrent attacks of peritonitis.

Such advice as this would a few years ago have seemed unwise and unsafe, but in view of our present successes in the surgery of such growths we are justified in adopting more radical measures than formerly. No one can doubt

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but that a woman is better and safer without a fibroid tumor than with one, and therefore the only questions worth considering are with how much safety can they be removed, and is there any surer or safer method of removing them than by extirpation?

Oöphorectomy has been proposed and practiced in times past for the purpose of accomplishing this object, but has proved itself both unsatisfactory and unreliable, besides being almost as dangerous as the removal of the tumor. The operation, excepting for small pelvic tumors, has passed out of use. The claims made for electricity, so far as the removal of fibroid tumors is concerned, have proved as predicted—fallacious—and to-day none but the most enthusiastic electro-gynecologists are making any claims in that direction, and these claims are made invariably without proof. The removal of a healthy non-adherent fibroma of the womb should be and is attended with but a small percentage of danger. Of the twenty-seven tumors of this character which it has been my fortune to remove by the extraperitoneal method but two (about seven per cent.) have died. In neither of these cases could the fault be placed on the operation, but rather on the operator and the previous treatment. The first death was that of a colored woman with a tumor which weighed much over twenty pounds. During the operation a towel (which had not been prepared for the purpose) was placed in the abdominal cavity to hold the intestines in place, while the necessary steps for treating the pedicle were carried out. This towel infected the peritoneal cavity and the woman died five days later of purulent peritonitis. The second patient was a white woman whom I had seen three years before in good health, with a benign, movable tumor. At the time of the operation she was an emaciated, bed-ridden woman with a rapid, feeble pulse, a high temperature and deeply septic. The tumor was fixed by adhesions, and a sinus which discharged pus freely was found on the outside of the left labia majora and pus was flowing from the vagina. The intestines and omentum proved to be adherent to the tumor, the tumor was adherent to the whole pelvis, both ovaries contained pus and the external sinus opened into the left ovary, and both ovaries and tubes were universally adherent. When the uterus, tumor, Fallopian tubes and ovaries were all freed, delivered and removed, there remained sinuses into the vagina and into the cellular tissues about the vaginal sheath. These terrible complications all followed a course of treatment by electro-puncture in the hands of an expert. That the patient died of purulent peritonitis was surely no discredit to hysterectomy. With these two exceptions all the tumors of this character which I have removed by the method which I almost invariably adopt have had as easy a convalescence as a patient who has had an operation for a simple ovarian cyst would have.

The method used has been that known as the extraperitoneal treatment of the stump. In this operation, the tumor is turned out upon the abdomen and a wire clamp is placed about the base of the neoplasm in order that it may constrict it and control the bleeding. A transfixion pin is then placed above the wire to keep it from slipping up or the stump from being pulled down through the grasp of the wire. The stump is then fixed in the lower angle of the incision and the abdominal wound closed. Whenever there is an inclination for

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the stump to bleed the wire is screwed tighter and any danger of hemorrhage is thus avoided. The advantages of this plan of treatment are—first, that the stump is under perfect control and if it shows any signs of bleeding it can be checked instantly by screwing up the wire; secondly, if there be any septic matter in the cervical canal or about the stump it is outside of the abdominal cavity and may suppurate with safety; thirdly, all raw or denuded surfaces are outside of the peritoneal cavity, and there is no chance for adhesions to form between them and the intestines.

The disadvantages claimed for this method of treating the stump are that the free action of the bladder is interrupted and that hernias are apt to follow at the point where the stump was originally fixed. The bladder certainly is irritable as long as the wire is kept on the stump, but this is corrected as soon as the stump has sloughed away or the wire is taken off. In but two cases have I seen hernia. In the one patient it appeared at the site of a drainage tube which had been used, and was more than an inch above the pedicle, and could consequently not be put down to anything but drainage. The second hernia appeared at the site of the old stump. The operation had been done in the case of a large sarcomatous uterus which was cut away and the stump treated outside the peritoneal cavity. As a matter of course there was not good union between the sarcomatous tissue of the stump and the surrounding tissues, and I was not at all surprised when the woman returned with a hernia. That the hernia did not appear in any of the other cases is pretty fair proof of the fallacy of the criticism. The dangers of septic peritonitis from a sloughing stump is a familiar battle-cry with those who are opposed to this method of treatment. Such a cry must be born of lack of experience; in no single case was there any such accident, although many of the stumps sloughed; in fact, it is this danger of septic peritonitis that is avoided by the above method of treatment of the stump.

There is an occasional fibroid tumor of the uterus that cannot be brought out of the abdominal wound so as to place a wire about its base. This is caused by the fact that the growth has split open one or both broad ligaments and has developed between its folds. In these cases it becomes necessary, if the tumor is to be removed, to tie off the broad ligaments and secure both the ovarian and uterine arteries; in which case it is probably best to then drop the stump back into the abdominal cavity or remove it entirely. However advantageous and easy this method may be in skilled hands, experience has taught us that as yet the extraperitoneal method has proven the safest and surest, and the time has not yet come for substituting for it other methods which have not been fully tried and matured. For the present, at least, a beginner in hysterectomy should think of but one method of treating the stump (the extraperitoneal), where that method is practicable, and as a matter of fact, in the vast majority of cases it is practicable. It is both the easiest and safest method to begin with, and if after mature experience one wishes to deviate and adopt a method which will give a less prolonged convalescence, he will find, if he has skilled fingers and a cool head, some of the intraperitoneal methods now being rapidly developed both comparatively safe and sure, but much harder of performance and with many more elements of danger.

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A CLINICAL STUDY OF THE GONOCOCCUS.[1]

By William H. Carpenter, M.D.

In view of the fact that many physicians either doubt or deny that the so-called gonococcus is the special microbe of gonorrhea, while others as firmly uphold this view, the subject of the specificity of the microbe described by Neisser, certainly offers a field for further study.

In the first place, the views of bacteriological and genito-urinary experts are of undoubted value in arriving at a conclusion. In addition to this, having the rich material of the Venereal Dispensary of the University Hospital at my disposal, I have endeavored to further investigate the subject.

No one will attempt to deny the contagiousness of gonorrhea, or the presence of microörganisms in the secretions of this disease. The question to be decided is, as to whether blenorrhagia is always associated with an individual microörganism, which, either by its form, grouping, color-reaction, method of growth, or inoculation, or by all these characteristics combined, is so distinctly different from all other bacteria, that with absolute certainty it can be regarded as the cause of the disease, and that when discovered it constitutes an absolute proof of the presence of true gonorrhea.

Of course, urethritis can be excited by any form of irritation, either chemical, mechanical or microbic, and the treatment of all these forms of inflammation is practically on the same line. From the medico-legal point of view, however, the question of the relation of the gonococcus to gonorrhea is of paramount importance.

Hallier, in 1872, was the first to clearly describe the presence of micrococci in gonorrheal pus. He says: "Gonorrheal pus contains a great number of cocci, partly free and partly inside the corpuscles, in which they cause spaces to form and finally completely destroy them."

Neisser, in 1879,[2] published an important work on the observations made by him on this subject. He found a microörganism which he called the gonococcus, and by this name it has been known ever since.

He says "that the gonococci are associated with pus cells, and are always of the same form, either rounded or oval. They are rarely isolated and are found nearly always in couples forming a figure-of-eight, or so closely joined on a flat surface that they seem but one. These diplococci usually form colonies of from ten to twenty individuals surrounded by a single hyaline membrane, which appears more clearly on diminishing the amount of reflected light."

According to this authority they are produced by the decomposition of leucocytes. In thirty-five cases of gonorrhea examined by him at different times, gonococci were found in all. He also found them in nine cases of purulent ophthalmia, but failed to find them in discharges of long standing or in the pus of buboes, balano-posthitis, simple conjunctivitis and leucorrhea.

[1] The thesis to which was awarded the prize offered by Dr. Edward Martin for the best clinical study of a surgical subject by a member of the graduating class, University of Pennsylvania, 1892.

[2] Centralblatt f. d. Med. Wissenschaft, No. 28.

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As a result of his researches he arrives at the conclusion that gonococci are always found in all secretions of gonorrheal origin, and to them it owes its specificity, also that their presence constitute an element of certainty in the diagnosis of doubtful cases.

In an article published later he claims that diplococci found in the healthy urethra, as described by Lustgarten and Mannaberg, differ in cultivation from true gonococci, in that the latter require blood serum for their development.

Urquehart[1] states that gonococci are a pathognomonic sign of gonorrhea, because: (1) All fresh cases present them; (2) old cases, treated till the secretions of pus are arrested and subsequently relapsing from venery, spirits, etc., present gonococci in the pus obtained by a cupped sound passed into the membranous urethra; (3) cases of nasty venery present no gonococci.

Cervelli,[2] who experimented under the rigorous methods of Pasteur in the Venereal Hospital of Paris, and also in Melbourne, affirms that there is a gonococcus, and that it is found exclusively in gonorrheal urethritis. He thinks that in order to carefully study this microbe the pus must be pure and fresh, and that acute cases should be taken before inflammation reaches the posterior urethra or is acted upon by therapeutic agents. He took gonorrheal pus, and after having made a careful cultivation, inoculated it into the healthy urethra of a girl getting a characteristic gonorrhea in six days. In cases of cultivation a comparison flask was always used. Gonococci were found in twenty-four hours, but it took five or six days for their complete development. They seemed to flourish best in a broth of extract of beef and agar agar. In all cases examined by him microbes of one kind, and having the same morphological aspect, were found. They were also found in all chronic cases, and cases where there was little discharge, where gonorrhea was known to exist. In cases caused by the catheter or other traumatism, gonococci could not be found. His description of the microbe very closely resembles that given by Neisser, as does also that given by Weiss. He found that they lost their virulency in cultivation, or when transported to unfavorable grounds. The same thing was seen late in some cases of gonorrhea where the pus became non-contagious even though gonococci still existed.

Lober[3] and Kratter,[4] in articles published in 1887 and 1890 respectively, both believe the gonococci to be absolutely diagnostic.

Moulin[5] states that the germ, gonococcus, is found in gonorrheal pus, and that cultivations of it have been made which are equally active. He says that the vaginal discharges which do not contain the gonococcus can infect the urethra or conjunctiva, but that the resulting inflammation is rarely so severe and is not followed by the peculiar sequelæ of gonorrhea. He thinks this last fact is not proved. He, however, believes that the gonococcus may remain latent, especially in women, for a long time, so that infection with the

[1] St. Louis Med. and Surg. Jour., 1890, LVIII, 204.
[2] Intercolon. M. Cong., Melbourne, 1889.
[3] Semaine Medicale.
[4] Gaz. Hebd. de Med. et de Chir.
[5] Treatise on Surgery.

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true virus, which grows with great vigor when transplanted to a fresh soil, can occur without there being any reason to suspect more than a leucorrhea.

Diday and Doyon believe with Steinschneider that in the female the urethra is involved first and that the vagina, because of the activity of its secretions and solidity of its epithelial lining, is not a good field for the gonococci. Also that after the gonococci have disappeared from the discharge in the female, they may still exist abundantly in the neck and body of the uterus without any necessary inflammation of these parts. In this way the authorities account for the spread of gonorrhea, which seems to have been derived from healthy women, and in which the cause of the disease is commonly ascribed to the male recipient becoming overheated. The view held by these writers on this subject seems very reasonable, when we consider the fact that many of the best informed gynecologists and obstetricians are more and more prone to consider gonorrhea as one of the principal causes of inflammation of the uterus and its appendages. Many of the cases in which the acute attack has passed away can be traced to this cause.

Strauss[1] reports a case in the Midi Hospital of a boy who had a true gonorrhea with gonococci, which was caused by excessive masturbation, he positively denying ever having had any intercourse with a woman.

Keating[2] states that urethritis is of two kinds, namely: that due to infection from impure contact and that due to non-venereal causes. He regards with profound skepticism the reported cases of urethritis induced by masturbation.

Bokai and Tinklestein[3] state that gonococci are rare at the beginning of an attack, but that they augment considerably during the second week.

Bockhardt[4] says that acute cases present more gonococci than chronic cases, and that the microörganisms are found in the lymphatic canals.

Wyeth[5] states that there is a specific and a non-specific urethritis. The specific variety can be diagnosed by the microörganisms.

Auburt[6] believes that the gonococci should be considered as characteristic of blenorrhagic pus, but that in order to be diagnostic they must be situated in the protoplasm of the pus cell around the nuclei; as full dependence cannot be placed on cocci scattered or in groups outside of the cells.

Birchmore[7] made an examination in thirty-one cases of urethritis; comprising men, women, and children. The Neisser coccus was found in sixteen of these, suppurative cocci in thirteen, and bacillus fabiformis in fourteen. The bacillus fabiformis is a saprophyte and is nearly always found in retained pus from the vagina, and in catarrhal degeneration of the glands in its membrane. He believes that Neisser's coccus may be of pathogenic significance, but that the cause of venerial urethritis is not determined.

Bokii, Eklund, Bockhart and Bumm state positively that there exists in

[1] A. U. M. S., Vol. III., 1890, E 8.
[2] Encyclopedia of Children's Diseases.
[3] Prog. Med. Chir. Press., Mai, 1880.
[4] Viert. f. Derm. und Syph., p. 1, 1883.
[5] Text Book on Surgery.
[6] A. U. M. S., Vol. IV., 1889.
[7] Kansas City M. Index, Vol. XI., 340.

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pus from various sources, and notably from the genito-urinary tract of women, diplococci, which it is impossible to distinguish by morphological characteristics or reactions from gonococci.

Bumm also describes three kinds of diplococci which can only be distinguished from gonococci by culture experiments.

Vibert and Bordas examined the discharge from six children with traumatic vulvitis. In all diplococci similar to gonococci were found. In form and dimension, in grouping, and in being placed in pus cells, and in staining, even according to Gram's method they were identical with gonococci.

Allen[1] has found in gonorrhea in women other microörganisms than gonococci. In chancre, carbuncle and balano-posthitis, microörganisms possessing all the characteristics of gonococci were found, except that the groups were not in the pus cells, as they must be in order to be characteristic of gonorrhea. In doubtful cases he believes that in order to make a positive diagnosis, we can either make culture experiments and inoculate or stain by Roux's method, which gives a negative result with the gonococci. In another article he says, "that there is no gonorrhea without gonococci, and although in some cases confirmatory tests are required we have such a test in Roux's method."

Wendt[2] states, that while it is true that the intercellular grouping of the gonococci will render a diagnosis possible, nevertheless he cannot allow to go unchallenged the claim that this constitutes a truly pathognomonic sign. In doubtful cases he employs Roux's color test and believes this never fails to give a correct interpretation.

Welander[3] found gonococci invariably in 129 cases of acute, and fifteen cases of chronic gonorrhea. Inoculation was practiced and counter experiments were made with non-gonorrheal discharges. In five instances fetid secretions of balanitis which contained large numbers of bacilliform organisms in active movement, was introduced into the urethra of three men with negative results. Lastly three women were selected who had no gonococci in the vagina but who had gonococci in the urethra; and the secretions from the vagina were introduced into the healthy urethra of three men with negative results, on the other hand the introduction of the pus containing gonococci from the urethra into the same three men produced a gonorrheal discharge which contained the characteristic gonococci.

Petit and Wassermann[4] found in repeated examinations of the discharge of chronic urethritis, that the pseudo gonococcus and smegma bacillus, stated by Lustgarten and Mannaberg to be constantly present in the normal urethra, were absent. Lustgarten and Mannaberg, in the examination of eight healthy individuals, one of whom had blenorrhagia five years before, found in all the same microörganisms. They found sometimes free and sometimes within the cells ten different kinds of bacteria, namely four bacilli, four diplococci, one streptococcus, and one micrococcus. One bacillus was absolutely identical with the smegma bacillus and the microörganism of tuberculosis, in form, color-reac-

[1] J. Cutan. and Gen. Urin. Dis., 1887, V. 81–91.
[2] Med. News, Phila., 1887, I, 455-457.
[3] Gazette Medicale de Paris.
[4] Annal. des mal. des org. genito-urin., Juin., 1891

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tions and dimensions; and there was a diplococcus to which the name of pseudo-gonococcus was given by them because it resembled the gonococcus of Neisser. They claim to have found constantly in the healthy urethra microörganisms so closely resembling gonococci in form, dimensions and color reactions that they call them pseudo-gonococci.

Rovsing experimented on thirty subjects, fifteen men, ten women and five boys, none of whom ever had urethritis. Eight results were negative. He found three staphylococci, three diplococci, three streptococci and two micrococci.

Petit and Wassermann experimented on four subjects, all of whom were healthy. By cultivation of the secretion from the normal urethra, six bacilli, five micrococci and two sarcinæ were found. No pyogenic bacteria were seen. They believe that the microbian guests of the healthy urethra are accidental saprophytes, and consequently vary according to the individual.

Oberlander says the main difference between blenorrhagic secretion and that of the normal urethra appears to lie in the fact that in the first case the gonococci appear more numerous, are much more massed together and are accompanied with few other microrganisms.

Petit and Wassermann declare that after one thousand examinations made in the service of Professor Guyon, they have never found pseudo-gonococci in the normal urethra. Frequently sarcinæ were seen, which on a superficial examination might be taken for gonococci. These, however, were not decolorized by the method of Gram. There are other sarcinæ which are decolorized by this method, but they are larger and not easily confounded with gonococci.

Steinschneider[1] insists that the characteristics of gonococci are their grouping in cells around the nuclei, their decolorization by Gram's method, as formulated by Roux, and their recolorization by Bismark brown or Loffler's blue.

Under the field of the microscope with a high power the gonococci resemble either the two grains of the coffee bean closely approximated, or they appear as round cocci. In the latter case, to the eye of the observer, one-half of the diplococcus is exactly covered by the other. The gonococci are true diplococci, and are generally found in groups inside of the pus cell, but do not appear to penetrate the nuclei. Where at the first glance they are thought to be grouped outside, a closer examination will often reveal the *débris* of the cell. The oval cocci multiply, according to Neisser, by separating in their long diameter, forming a pair of diplococci. These subsequently divide in the opposite diameter, forming a group of four, and so on, until the pus cell is crowded with the organisms. Their diameter as given by Jullun is from one-half to one micro-millimetre.

The method employed in staining is what is known as Roux's method, and depends upon the fact that after being stained with analine dye and then being placed in Gram's solution, and decolorized in alcohol, the gonococci disappear, while other microrganisms retain their color.

A drop of pus is procured directly on a cover glass and is spread in a thin

[1] Berlin. klin. Woch., June 16, 1890, p. 533.

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and uniform layer, by firmly pressing and rubbing another cover glass against the first. After being allowed to dry in the air the cover glasses are slowly passed through the flame of an alcohol lamp three times, the film side being up. They are then ready for staining. For this purpose I used a watery solution of gentian violet, although fuchsine seems to answer as well. The cover glass is floated in the dye with the film side down for three minutes, and is then washed with distilled water. The excess of water is dried off with bibulous paper and the glass is immediately placed under the microscope for examination. If gonococci are thought to be seen and it is necessary to confirm the diagnosis, the cover glass is floated in Gram's liquid for two minutes, the excess of iodine is then washed off, and the glass is placed in absolute alcohol until decolorization takes place; this requires about two minutes. The alcohol is washed off in distilled water, and the cover glass is again examined, when it will be found that the gonococci have disappeared, while all other microörganisms which may have been present will be distinctly visible. If desirable the pus cell may be again brought out by immersing in a watery solution of eosin, or the gonococci may be restained in gentian velvet.

The gentian violet solution used is made by adding five or six drops of the concentrated solution to a watchglass of water. The concentrated solution is made of powdered gentian violet one part, alcohol fifteen parts, analine oil three parts, water eighty parts. The dye must be filtered each time it is used.

Gram's solution is composed of one part iodine, two parts potassium iodide and three hundred parts of water.

The eosin solution is made by adding the powdered drug to distilled water until it is highly colored.

Deviation from the method just outlined, will be apt to vitiate the results, although the strength of the staining solution, or the time the cover glass is left in, may be varied. In this relation it is well to remember that the nuclei and microörganisms absorb the stain first. If the cover glass is removed and washed when this has occurred, the pus cell will present a clear field, and thus facilitate the examination. Care should also be taken not to leave the cover glass too long in Gram's solution, as the pus cells rapidly absorb the iodine, and the results of decolorization are not so satisfactory. The object of using this solution is merely to fix the color in the microörganisms, which are not gonococci. If this step is neglected the alcohol will decolorize everything. Again, it is possible to partly or completely decolorize any microbe, even after being in Gram's solution, if left in the alcohol too long.

Two or three cover glasses were tried by dropping directly into eosin, but the nuclei of the cell and the microörganisms failed to take the stain, the body of the cell alone being colored.

In some of the cases where the pus cell was loaded with various microbes, and gonococci were thought to be seen; it was difficult to tell, after decolorization, whether they had disappeared. As a help to determine this, I compared the cover glasses, which had been rubbed together, by decolorizing only one and then examining. The peculiar grouping of the gonococci in the pus cell generally renders the question of disappearance easy to determine.

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In the following cases I have endeavored to give the history and state the results of the examination as far as they bear any relation to the subject in question. The microscope used was a Zeiss with a one-twelfth oil immersion lens. A one-fifth objective, with a one-half or one-inch eye piece and a drawn out tube gives a fairly clear definition of the gonococcus, and this will probably be sufficient power to establish a diagnosis in ordinary cases. To make a critical study of the microbe a higher power should be used.

The examination included seventeen cases of gonorrhea, two of gonorrhea and phimosis, three of suppurating wounds, three of leucorrhea, and one of each of the following: gonorrhea and balano-posthitis, abscess, bubo, empyema, herpes progenitalis, chancroid, subacute urethritis, traumatic balano-posthitis and secretions from the normal urethra

Examinations of Gonorrheal Pus.

The secretions in the following cases of gonorrhea were stained and examined with the aid of the microscope. Microörganisms, resembling gonococci, were found, more or less abundant, in every instance.

Having stained and examined the slides carefully, they were then immersed in Gram's solution and decolorized in alcohol, when the gonococci were found to have been decolorized, while the other forms remained unchanged. In some cases other organisms were seen.

Case I.—E. T., aged 20; first case; no treatment; incubation, 7 days; duration, 6 days.

Case II.—J. F., aged 22; first case; has been treated by medicated bougies; incubation, 5 days; duration, 17 days; has been drinking considerably.

Case III.—J. D., aged 16; first case; duration, not known.

Case IV.—*Complicated with Phimosis.*—J. B., aged 22; first case; incubation, 6 days; duration, 1 day.

Case V.—J. G., aged 23; incubation, 6 days; duration, 7 days; no treatment; four years ago contracted syphilis.

Case VI.—J. Q., aged 28; incubation, 7 days; duration, 40 days; has had internal medication, under which treatment the discharge nearly ceased; on commencing to drink, however, it returned.

Case VII.—J. B., aged 33; third case; incubation, 3 days; duration, 14 days.

Case VIII.—R. W., aged 10; first case; incubation, 5 days; duration, 11 days.

Case IX.—W. S., aged 23; Incubation, 4 days; duration, 15 days; has been using an injection.

Case X.—J. C., aged 20; this patient has been treated for syphilis for two months, and had gonorrhea a year ago.

Case XI.—R. B., aged 20; first case; incubation, 10 days; duration, 4 days: no treatment.

Case XII.—J. K., aged 28; first case; incubation, 7 days; duration, 4 days; no treatment.

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CASE XIII.—W. B., aged 23; no treatment; incubation, not known; duration, 14 days.

CASE XIV.—E. F., aged 20; incubation, 3 days; duration, 3 days; no treatment.

CASE XV.—P. C., aged 20; third attack; incubation, 3 days; duration, 7 days; previous to the examination this patient had suffered with a slight attack of epididymitis, but when the pus was obtained the discharge had returned quite freely.

CASE XVI.—R. M., aged 21; second case; incubation, 6 days; duration, 5 days; no treatment.

CASE XVII.—*Complicated with Phimosis.*—P. B.; incubation, 2 days; duration, 4 days.

CASE XVIII.—Girl aged 18 months; five days ago the mother noticed a free discharge from the child's vagina, which could not be accounted for; an examination showed that the mucous membrane of the vagina was inflamed; this was very marked at the urethral opening from which a purulent discharge issued; the mother, three years before, suffered from inflammation of the privates, characterized by ardor urinæ and pain; this recovered of itself, but she has suffered from leucorrhea ever since.

NOTE.—This was a case obtained from the Children's Hospital, and from the history and nature of the inflammation, was believed by the physician in charge, to be specific.

CASE XIX.—*Complicated with Balano-Posthitis.*—G. S., aged 21; incubation, 5 days; duration 14 days; a few bacilli and other microbes seen; some had all the characteristics of gonococci but they disappeared after immersion in Gram's solution and alcohol.

CASE XX.—C. S., aged 32; second case; incubation, 7 days; duration, tion, 3 days.

EXAMINATIONS OF NON-GONORRHEAL PUS.

In the following cases cover glass preparations were made and stained as before. Usually, a variety of microörganisms were found, none of which resembled gonococci, however, and the latter were further excluded by all the forms present retaining the stain after being passed through Gram's solution and alcohol. Cases XXII and XXIV did not show any organisms.

CASE XXI.—*Abscess.*—P. D., small abscess of the perineum of 4 or 5 days duration; opened a few hours before obtaining the pus for examination.

CASE XXII.—*Necrosis of Femur.*—J. H., aged 20; pus obtained from an open running wound, caused by necrosis of the lower part of the femur; this wound was under antiseptic treatment. An examination failed to positively identify microörganisms of any kind.

CASE XXIII.—*Suppurating Wound of the Scalp.*—The pus was obtained from a suppurating wound of the scalp of a young girl.

CASE XXIV.—*Bubo.*—J. S., aged 25; following a case of gonorrhea, had a bubo which was opened 45 days after contracting the disease. An examination of four or five cover glasses was made; in none of these specimens

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could microörganisms be positively identified, either before or after staining in Gram's solution and decolorizing.

CASE XXV.—*Empyema of Long Standing.*

CASE XXVI.—*Herpes Progenitalis.*

CASE XXVII.—*Chancroid.*—J. K.; incubation, 9 days; duration, 2 days; no treatment; the patient presented a typical chancroid.

NOTE.—The cocci present seemed to hold their color slightly better than the bacilli.

CASE XXVIII.—*Subacute Urethritis.*—C. H., aged 24; married and has a child; an examination of the patient revealed a very slight discharge, which, he says, he has had for four months.

CASE XXIX.—*Leucorrhea.*—M. C., aged 27; married 2 years; is being treated for dysmenorrhea and leucorrhea.

CASE XXX.—*Suppurating Wound.*—Pus from a suppurating wound of the neck, which was antiseptically dressed; only 2 or 3 diplococci were seen.

CASE XXXI.—*Traumatic Balano-Posthitis.*—Boy, 18 months old; had marked phimosis, but no discharge; the foreskin was forcibly stripped back, causing a severe balano-posthitis. An examination of the discharge, taken 24 hours afterward, revealed sarcinæ, bacilli and staphylococci, but no gonococci.

CASE XXXII.—*Chancroid and Balano-Posthitis.*—R. C., aged 22; duration, 7 days; had gonorrhea 2 months before the present attack, and apparently recovered.

CASE XXXIII.—*Leucorrhea.*—M. H., five years ago, was supposed to have had gonorrhea, and has since suffered from ovaritis and salpingitis; she now has leucorrhea.

CASE XXXIV.—*Leucorrhea.*—M. M., married one year. Suffering from leucorrhea.

CASE XXXV.—*Secretions from Normal Urethra.*—H. C., aged 21. Has never had urethritis. An examination of the secretions revealed many microörganisms, including bacilli, diplococci, streptococci, and possibly a variety of sarcinæ. The diplococci were few in number and most of them were free. Those inside the epithelial cells lacked the characteristics of gonococci in their position and grouping. On immersing in Gram's solution and decolorizing in alcohol, the microbes apparently all retained their color.

Although the cases examined included gonorrhea at many different periods, it was very difficult to make a comparison between the number of the microbes, and the various stages in which the disease was seen. Some had been treated by injection or internal medication, while others had aggravated the original inflammation by drink. Again some of the cases were complicated by balano-posthitis, and the mixed secretions contained many microbes that were not gonococci, rendering a comparison impracticable. In the cases quoted, phimosis practically means balano-posthitis, as when there is urethritis, a stripping back of the foreskin often shows an inflamed surface beneath.

It was generally noticed in uncomplicated cases of gonorrhea that few if any microbes were present except the gonococcus, while mixed secretions, as of gonorrhea and balano-posthitis, nearly always presented either micrococci,

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sarcinæ, diplococci, streptococci, spirilli and bacilli, or all these in addition. For instance, in Case I (gonorrhea) there was not a single microbe to be seen, after decolorizing, while in Case IV (gonorrhea and phimosis) many varieties were present.

In some of the observations, where no gonococci were seen, there were apparently, in several cases, fewer microörganisms after discoloring than before. This may be ascribed partly, if not wholly, to the pus sticking to the slides or being washed off as the cover glasses were passed through the various solutions. This would not be the case, as the film is fixed by the alcohol flame, if it were not for the cover glass being placed upon the slide while wet, and after the examination being immediately removed. This was easily proved. When a clean cover glass was placed on the slide after the stained one was removed, and an examination was made, pus cells and microbes could be found. This was all the more noticeable as the decolorized pus apparently revealed the same varieties of microörganisms as the original.

Of the authorities quoted, Neisser, Hallier, Uquehart, Cervellii, Weiss, Lober, Kratter, Moulin, Diday, Doyon, Keating, Steinschneider, Tinklestun, Wyeth, Aubert, Allen, Wendt, Petit and Wassermann directly or indirectly state that the gonococcus is characteristic of blenorrhagic pus.

Strauss, Birchmore, Bokai, Eklund, Bockhardt, Bumm, Vibert, Bordas, Lustgarten, Mannaberg and Oberlander doubt or deny that the gonococcus is pathognomonic of gonorrhea.

The staining method as formulated by Roux is comparatively recent, and is believed to be an absolutely confirmatory test of the presence of gonococci by Steinschneider, Petit, Wassermann, Wendt and Allen. Vibert and Bordas state that they have found diplococci in traumatic vulvitis, which responded to the test for gonococci by this method.

From the observations made upon the thirty-five cases just quoted, which included pus from various non-gonorrheal sources as well as from gonorrheal the conclusion that there is a microbe found in blenorrhagic pus which is not found elsewhere was quite unavoidable.

While circumstances did not permit of making culture experiments and inoculating to prove it the case, I have but to refer to the careful experiments of the authorities quoted for this part of the evidence.

The proof is very positive that the gonococcus is always decolorized after staining by Roux's method. From the examinations as detailed above, it would seem open to question whether certain other microörganisms may not show a similar reaction, but that neither in grouping nor in size are such organisms similar to gonococci. The peculiar characteristics of the gonococcus in itself enables the examiner to give an almost positive diagnosis, and when this is confirmed by Roux's method of decolorization it practically leaves no room for doubt. To justify such a positive statement, however, the pus should be obtained directly from the secreting surface.

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MEMORANDA.

NOTES ON QUININE IDIOSYNCRASIES.

CONSIDERING the millions of doses of quinine taken every year, the number of cases in which it produces effects that would not be anticipated is very small. Many years ago I had under my care a patient, in whom twelve grains of the sulphate of the alkaloid produced complete amaurosis, and, as the young lady happended to have a blind sister, extraordinary agitation in the family. Being of doubtful temperament, I formed at first the impression that the amaurosis was simply a coincident hysterical manifestation; but on repeating the quinine the blindness redeveloped with the other symptoms of mild cinchonism, and disappeared *pari passu* with them.

Recently, having occasion to prescribe quinine to Miss——, aged about 25, I was told by her that she had been poisoned by this substance twice in Europe, but it was agreed between us that she should take one two-grain pill; which she did about five o'clock in the afternoon. About six o'clock she was taken with a burning pain in the hands, which spread over the whole arm and finally to the surface of the body, until she was tingling and burning everywhere. About half-past six a severe pain in the stomach set in, followed shortly by vomiting. A few minutes later she fainted, remaining unconscious for five minutes. I saw her about 6.45; at that time her whole surface was much swollen, brilliant red in color, with urticaria in wheals and long ridges. The pulse was between 50 and 60 and very feeble. Vomiting had occurred several times, and there had been one loose passage. The temperature was 102½: the day before, at the same hour, it had been 99½. There was a good deal of nervous excitement and unrest, but no delirium and no hysteria. Opium was given by injection and brandy freely by the mouth. After this vomiting recurred several times, large quantities of greenish fluid being rejected; there were also one or two alarming fainting spells. A little after seven o'clock the symptoms began to subside, and in about five hours the patient returned to her normal condition.

This case is made the more interesting by the fact, which I learned after the poisoning, that a brother of the patient had had, on at least two occasions, similar symptoms provoked by quinine. Careful investigation failed, however, to get any trace of the idiosyncrasy in past generations.

These rarer peculiar relations of human individuals to quinine must not be confounded with the more frequent disagreeable effects of quinine, some of which are apt to be overlooked by practitioners. The local effect of quinine upon mucous membranes is distinctly irritant, and I have met with many people in whom the cinchona alkaloids produced marked gastro-intestinal irritation; so that chronic diarrhea or gastro-intestinal catarrh have come, in my mind, to be very important contraindications to the use of the drug. The

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irritating effect of quinine is also often manifested at its point of exit from the body, and the existence of cystitis or conditions allied to it should make the practitioner very careful in the administration of the drug. Some time since I called to see a personal friend, a very eminent surgeon, who was convalescent from an acute inflammation of the neck of the bladder, but who was much prostrated every afternoon by a violent attack of pain entirely out of proportion to the amount of local disease apparently remaining. Finding that the patient was taking quinine freely as a tonic, and that the time of the attack of pain was coincident with that at which quinine was being most freely eliminated from his body, I suggested the disuse of the alkaloid, the result being the immediate disappearance of the pain.

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A CASE OF HEREDITARY SYPHILITIC PEMPHIGUS.

VERY interesting discussions have been elicited and much valuable information obtained in the past few years pertaining to the proper classification, nomenclature, etc., of certain inflammatory diseases of the skin, such as erythema, herpes, dermatitis herpetiformis (Duhring), impetigo herpetiformis (Hebra and Kaposi) and pemphigus. Without considering the relative merits of the opinions of various workers in this interesting field or entering into any discussion as to the relation the following case bears to either or any of the opinions so expressed, I desire to place on record both the history and reproductions from photographs, taken a few hours after death, of a case of bullous syphiloderm, usually designated syphilitic pemphigus.

The various lesions, or their shadings or intermingling, in the successive stages of the disease, are highly interesting and noteworthy and will repay careful study.

In October, 1888, I attended Mrs. L., a German-American woman of about 30, in her fourth confinement; the products of her former deliveries being, respectively, a boy and a girl, then living, apparently healthy, aged 4 and 3 years, and a male infant, who died some three months previous, at thirteen months, of inanition, superinduced evidently by a scrofulous or syphilitic cachexia.

Delivery in the present case was accomplished without delay or interference, but was followed by a copious and protracted post-partum hemorrhage, which, requiring my individual attention for the next hour, the child, a female, plump and well nourished, but with marked "sniffles," was handed hastily over to the care of an assistant nurse. At my visit next day, in reply to inquiries concerning the child, my attention was called to an irregular, dome-shaped vesicle or bleb, about the size of a coffee grain, situated on the outer surface of the auricle near its upper border; its margins, though irregular, were sharply

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cut and not surrounded by inflammatory areola. Lower down, covering a portion of the tragus and lobule and extending forward on the face, were irregular areas of dusky or livid infiltration, rendering the skin firm, tense, glistening and somewhat elevated; lividity, tension, etc., were most marked in the centre of these areas and gradually shaded or faded outward to healthy skin. In from twenty-four to forty-eight hours they became surmounted by vesicles similar to that on the auricle, in all of which, unless accidentally ruptured, the contents gradually changed from a clear watery serum, to a cloudy or finally puriform character.

Simultaneous with these changes on or about the ear and face, large vesicles or watery bullæ appeared on the radial side of the wrists, over the thumbs and index fingers, the inner surfaces of the ankles and insteps and plantar regions of the feet (well seen in Plate II). In most instances the superficial layers only of the skin seemed affected, while in others the deeper layers of the corium seemed raised, this being most marked where the vesicle had been preceded by dusky infiltration, making a thick, tough covering, larger in area and less elevated than the former; the contained fluid also partaking more of the character of true pus, or if long retained, as rarely happened, becoming sanguinolent. These changes, however, were exceptional, the usual appearance being that of a more or less irregular vesicle rising abruptly from healthy skin and filled with clear fluid.

From the points of first invasion just noted the disease rapidly extended to the face and neck, and along the inner aspect of the arms, legs and thighs, to the axillas and groins (Plates II and IV), where singularly, it seemed to disavow its predilection for inner or flexor surfaces and extended over the buttocks, back and shoulders, coalescing with similar eruptions already existing in these localities (see Plates II and IV).

It must not be understood that extension took place by continuity of surface alone, nor yet by advancing marginate patches, for, during the course of the disease, there were constantly appearing new foci, widely separated from present affected localities, which, by mutual extension, became confluent, thus eventually destroying the healthy intervening skin.

As might be inferred from what has been said as to the direction of advancement, or as a glance at the plates will suggest, extension and coalescence took place on the extremities chiefly in the direction of their length, or axis, while on the trunk, neck and face the converse of this is true.

Over the trunk there were fewer areas of primary infiltration, the vesicles arising abruptly often in groups, mere minute specs, like sweat vesicles, which coalescing would form large flat flaccid bullæ, with here and there an umbilicated depression, possibly marking the last point invaded, or the last disappearing island of healthy skin.

In from one to three or four days collapse or rupture of these bullæ would take place, more, perhaps, from pressure or friction than spontaniety, and the contents spread over the adjacent surface and partially dessicating, would, together with the ragged displaced epiderm, form irregular crusts of varying density and color, from the blanched white, due to maceration of the epithelium, through

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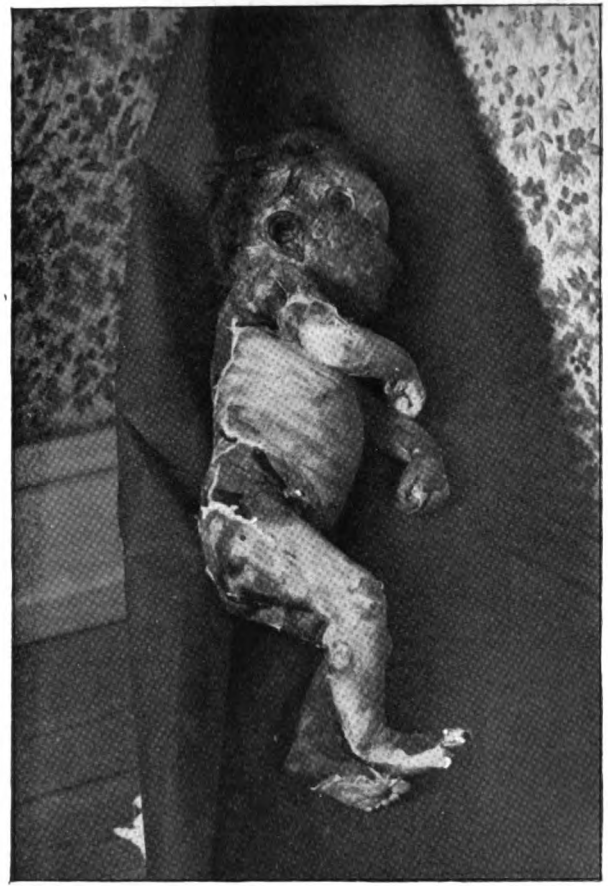

PLATE III.

PLATE IV.

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PLATE I.

PLATE II.

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yellowish and brown to black crusts; the latter from the admixture of blood clots, well shown on the inner aspect of the thighs and over the back in Plate IV, or on the face and chin of Plates I and III.

Very rarely the skin replaced itself, and drying would form a rigid covering, not unlike paper that has dried after being saturated with mucilage. Unyielding, it cracked with motion of the body, and the fissures involving the underlying tissue formed an ulcerated line its entire length; later, the margins of this dry covering folded or rolled outward upon themselves and disclosed an unhealthy granulating or suppurating surface.

More usually however, the epidermis was entirely lost or crushed together at one side of the disrupted bullæ, or raggedly hung by an attached edge, exposing a dull red surface here, or bright red there, or an angry superficial ulcer, or a surface secreting pus, or covered with a thin film of pseudo-membrane, not unlike that of diphtheria; not unfrequently excoriations and abrasions with consequent areola, or abortive efforts at granulation for the reproduction of dermal tissue, all concurred to make up this multiform picture throughout its various stages of evolution for a period of five weeks, when death, at last, not only brought to a stand-still these interesting phenomena, bnt gave rest to the little piece of helpless humanity, who, according to Divine teaching, was suffering for the iniquities of its fathers.

In this connection it might not be amiss to note that the father of this little victim, with apparent desire to divert attention from himself, voluntarily inculpated the morals of his father's early life; or, to add that subsequent to the birth of this child, two others have been born, the last of which had talipes calcaneous, and after a miserable existence of eight months, died of inanition, much as its early brother did some four years previously. The other, now some 3 years old, has had a struggle for its existence, and shows undoubted evidence of the inherited cachexia.

The treatment pursued in dealing with this intractable case is foreign to the purpose of this paper; suffice, it is to say, it consisted of alterative tonics, cod-liver oil, antiseptic applications, sedative ointments, etc., without, in any manner, staying the progress of the disease.

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THE USE OF HARD-RUBBER FOR SPLINTS.

I DESIRE, through the medium of the UNIVERSITY MEDICAL MAGAZINE, to call the attention of the profession to the advantages of using hard-rubber for splints. For some time past I have been using splints made of this material, and find it answers the purpose much better than anything heretofore used.

My attention was first called to it by a case of orthopedic surgery, in which

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a splint had to be improvised. It was desired to have one made of firm material of sufficient pliability to render it capable of being molded to fit, and at the same time thoroughly antiseptic. No splint could be found in the shape to suit the case; and the operator, knowing just what he wanted, was yet at a loss to know what to use. Wood was totally unfit. Glass was resorted to, but the fragility and the care and trouble required in manipulating, soon settled the question against it. Cardboard, felt, leather and tin were all tested and found wanting. Finally, hard-rubber was thought of, and a sheet, one-eighth inch thick, was purchased for a small sum. The outline of the splint was marked on the surface, and by holding it over the chimney of the office lamp, and heated along the lines marked, it was found to "cut like cheese" with a penknife. By again heating the whole splint thus cut out, it was very easily molded into the exact form desired, and when immersed in cold water, hardened and retained the same shape.

Here, now, was a hard, firm, light antiseptic splint, the shape capable of modification by simply heating and manipulating. The satisfaction this gave was an inducement to make further use of the same material in other cases, and in each it was simply a repetition of the results of the first trial. Particularly is it of value in cases of orthopedic surgery. These are the cases which test the surgical skill, the ingenuity and mechanical ability of the practitioner. Cases in which no fixed form of splint can be adhered to, but each is a rule unto itself, each individual case requiring a splint of a form peculiar to itself.

And in general surgery where a splint is desired, those made of hard-rubber will certainly give satisfaction. For instance, take the shoulder, how infinitely superior is the use of a splint, made of this material, to those made of felt, cardboard or metal.

Again, if it is desired to use angular splints, say at the elbow, either internal, anterior or posterior, with what ease, by simply heating, can the angle be changed to either acute, right or obtuse. No hinges, no joints; and a Bond splint made of this material is, to the eye, "a thing of beauty," and in use "a joy forever."

To repeat then, as the pioneer in advocating the use of hard-rubber for this purpose, I claim for it superiority over anything else. The ease with which it can be molded to fit the part, the retention of that shape, the strength and consequent support afforded, the lightness, the durability, the cheapness, the resistance to corrosive action of water or acids, and its absolute antiseptic nature, all combined in the one material, renders it the best yet brought to the attention of the profession for this purpose. And I hope ere long the manufactures of rubber goods will turn us out full sets of hard-rubber splints, and their general use will surely follow.

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DEPARTMENT NOTES.

ANATOMICAL.

NOTES ON SOME ANOMALIES.—Among the anomalies found in recent dissections in the Anatomical Rooms of the University of Pennsylvania may be mentioned the following:

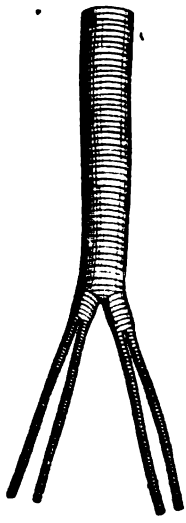

FIG. 1.

(1) *Common Iliac Artery.*—The abdominal aorta divided at the lower border of the fourth lumbar vertebra, into the two common iliac arteries, which were only a trifle over a quarter of an inch in length, the left being slightly longer than the right. The external and internal iliac arteries ran close to each other and parallel, occupying thus the usual position of the common iliac. I am unable to state the relations of the veins, as these had been partly removed when I saw the subject. The accompanying drawing gives an idea of the appearance of the vessels. The specimen is preserved in the Wistar and Horner Museum. Quain (Commentaries on the Arteries, London, 1844,) mentions a case in which the common iliac on one side was half an inch in length, but none where this abnormality existed on both sides. Cruveilhier (Anatomie Descriptive, Tome, III, p. 186), quoted by Quain, speaks of a case of absence of the right common iliac, the external and internal iliac arising separately from the abdominal aorta. Walsham has observed absence of the common iliac on the left side (St. Bartholomew's Hospital Reports, XVII, 1881). Krause, in Henle's Anatomy, does not refer to an anomaly similar to the one here recorded.

(2) *Biceps Muscle.*—In the right arm of a very muscular subject, the "biceps" was found to have five heads, one of the three extra heads arising at the point of insertion of the deltoid, a second from the margin of the bicipital groove, and the third from the inner aspect of the humerus, at the point of insertion of the coraco-brachialis. The additional heads were about half an inch in width. The same arm presented several other muscular variations.

(3) *Median Nerve.*—The median nerve divided into two equal parts, a short distance below the bend of the elbow, and these parts reunited after forming a loop of about two inches in length; through this loop passed a bundle of muscular fibres, which arose from the coronoid process of the ulna, and joined the flexor longus pollicis; this bundle of muscular fibres, with its tendon, was four or five inches in length (see illustration). In the same subject the intercosto-humeral nerve split into two branches, which soon reunited, forming a loop through which passed the long thoracic artery. There were several other variations in the other nerves and arteries of the same arm.

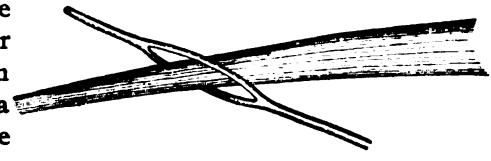

FIG. 2.

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(4) *Transversalis Muscle.*—Upon the left side of a very muscular male subject, the transversalis abdominis arose from only half an inch of the outer end of Poupart's ligament, instead of from the outer one-third of the ligament, as is usually the case. The fibres passed upwards and inwards, leaving a very wide interval for the spermatic cord. The muscle did not contribute to the formation of the conjoined tendon, only a very few of its fibres joining the internal oblique; nor did the muscle form the upper boundary of the internal abdominal ring. Apparently a weak spot was thus formed in the lower abdominal parietes, and it is perhaps likely that such a condition would predispose to the development of an inguinal hernia, though none existed in this subject. The parts were normal on the right side.

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CLINICAL DEPARTMENT.

UNIVERSITY HOSPITAL.

[Service of DR. JUDSON DALAND.]

HICCOUGH FOR EIGHT DAYS OCCURRING IN THE COURSE OF TYPHOID FEVER.

J. S., aged 32, male, was admitted to the University Hospital on the fifth day of the disease. On admission, the case was thought to be one of rheumatic fever, the patient experiencing severe pains in his left shoulder and trunk. The day following, however, several rose-colored spots appeared in the axilla, and on the succeeding day a typical crop was observed upon the abdomen. Abdominal tenderness and diarrhea developed in the course of a few days. The temperature during the first week hovered about the 104° line, but subsequently became more moderate. The patient was exceedingly irritable and restless from the onset. On the ninth day delirium made its appearance.

Appended is a daily record of the patient's condition from this time on:

9th day. Very restless; slight delirium; vomiting (once).
10th " Marked delirium; vomiting (one attack).
11th " " " no vomiting.
12th " " " hiccough for twenty minutes.
13th " " " " all day (occasional cessation for half hour or so).
14th " " " " " vomiting (one attack).
15th " " " " " " (three times).
16th " " " " " " (seven times).
17th " " " " " " (six times).
18th " " " " " " (six times).
19th " " " " " no vomiting.
20th " " " no hiccough; no vomiting.

Neither hiccough nor vomiting subsequently.

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From the above will be seen the close relation of the hiccough to the vomiting. The steady persistence of the two symptoms, and the almost synchronous cessation of both, are quite significant as to the causation of the singultous attacks. They were in all probability produced reflexly by irritation of the terminal filaments of the pneumogastric nerves in the stomach. Another prominent factor in the production of the hiccough, was a marked susceptibility of the patient to diaphragmatic clonus, he having had such attacks on frequent occasions previously. The gastritis, then, in addition to the idiosyncrasy, sufficed to produce this persistent and most troublesome complication. Therapeutic measures of all kinds were pursued, but to no permanent avail, the hiccough subsiding spontaneously on the twentieth day. The patient left the hospital on the forty-first day of his illness.

JAY F. SCHAMBERG,
Resident Physician.

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University Medical Magazine.

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EDITORIAL.

SUPRAVAGINAL HYSTERECTOMY FOR FIBROID TUMORS.

SINCE we have now learned that in a certain proportion of cases, uterine fibroids not only do not spontaneously disappear after the menopause, but in some cases take on more active growth, the plan of temporizing with medicines until this period has arrived is losing adherents. Curetting the uterus gives but temporary relief from the exhausting hemorrhages, and even oöphorectomy fails in a number of instances. The question of a more radical treatment, therefore, forces itself upon us. Hysterectomy has been advocated for many years by most able authorities for the relief of fibroid tumors of the uterus, and, although this teaching is now almost universally accepted, the method of performing the operation is still a matter of controversy.

The intraperitoneal treatment after ligation of the pedicle was first practiced by Schröder, and later, by other operators. In this method, secondary hemorrhage was of frequent occurrence, and the ligated stump sometimes sloughed; this was apt to give rise to sepsis. The results were so unsatisfactory that Schröder, himself, afterwards abandoned the operation. To overcome the difficulties alluded to, Péan devised the extraperitoneal treatment of the stump. The advantages of this method were so apparent that it at once had a large number of followers. The stump was under the eye of the surgeon; hemorrhage could be promptly and effectually controlled, and if sloughing of the mass

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occurred it was outside of the body, and, therefore, largely devoid of danger. The pedicle was transfixed, ligatured, clamped or constricted by the serre-neud, according to the preference of the operator, but in all cases it was a strangulation of the entire uterine mass; a perfect result was thought to have been obtained when the stump mummified, and finally separated at the end of the second or third week. Occasionally, however, the tissue became a most offensive sloughing mass, and the patient was subjected to the dangers and annoyance of a suppurating wound. On account of the pronounced objections to this proceeding, therefore, gynecologists began to look for a more perfect technique. In the first place, in certain cases it is impossible to bring the stump up so that it could be fixed in the lower angle of the abdominal wound. Next, as has been said, sloughing may occur, again the amount of traction is sometimes the source of annoyance, or even of actual suffering, hernia is said to be more apt to follow than when the abdominal wound can be entirely closed by suture, and finally the plan of ligaturing such a mass as the entire uterine cervix for the purpose of controlling hemorrhage is not in accord with present surgical methods. In no other operation in surgery would such a proceeding be countenanced. As well might one constrict the thigh after amputation of this member instead of ligating the vessels separately.

Certain fundamental principles are equally applicable in all departments of surgery: of these may be mentioned, asepsis, the isolation and ligature of vessels, and the apposition of the wound margins. Accepting these premises it becomes evident that the vessels severed in supravaginal hysterectomy should be dealt with as vessels elsewhere. Very recently operators, realizing this fact, have directed their efforts to this end with the result of constantly improving technique. To meet the requirements mentioned, Baer has given us (*American Journal of Obstetrics and Diseases of Women and Children*, No. 4, 1892) what seems to be the ideal operation. After the tumor is brought out through the smallest possible abdominal incision, a silk ligature is made to transfix the broad ligament near the cervix, and again near its outer edge and tied. The broad ligament is grasped with a pedicle forceps just above this ligature to prevent reflux, and severed between. This step is repeated on the opposite side. An incision, through the peritoneum over the tumor, is made anteriorly and posteriorly, connecting the two incisions through the broad ligaments, and the peritoneum stripped down in order to secure flaps. The uterine arteries are next ligated. This is done by passing a needle deeply through the broad ligament on either side close to the cervix, avoiding, however, all cervical tissue, and tying outward. Care must be observed not to include the ureter. The tumor is now removed by a wedge-shaped incision at the position of the internal os, the apex of the wedge corresponding to the cervical canal. The cervix being released, it immediately recedes, and is drawn deeply into the pelvis, the flaps fall over the stump and thus close the peritoneal cavity. If necessary, they may be united by Lembert sutures. The abdominal wound is closed without drainage. The following advantages are claimed for this method: Security against hemorrhage and sloughing; preservation of the cervix, and thereby the strength and anatomical shape of the lower portion of the

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abdominal cavity; securing of immediate union, entire closure of the pelvic cavity; there is no distortion or displacement of neighboring viscera; there is no undue mutilation nor unpleasant squelæ, and the operation and convalescence are both shorter than by any other method.

It is to be noted that there is no ligation of uterine tissue. Baer reported (*loc cit.*) ten cases operated upon by this method; a number of which were complicated. The patients all, with one exception, made a good recovery, and the unfortunate result in this case was not due to the operation, but to previously existing disease.

BOOK NOTICES.

HISTORY OF THE LIFE OF D. HAYES AGNEW, M.D., LL.D. By J. HOWE ADAMS, M.D. Philadelphia: F. A. Davis Co., 1892.

The advance copies of the "History of the Life of Dr. Agnew" have just been issued. This work has been anxiously expected by his many friends; it will be welcomed with pleasure. It is fortunate that the collection of this mass of material as regards his private and professional life was entrusted to one who not only had intimate association and the opportunity for procuring such knowledge, but also had the energy to acquire from various sources so large a number of incidents and facts of Dr. Agnew's personal life. Dr. Adams has been furnished, by Mrs. Agnew and others, data which could have been obtained by no one else.

Throughout the whole work there is life-like delineation of Dr. Agnew's progress from infancy to old age.

The frontispiece of the work is an excellent photo-gelatine copy of Uhle's painting, which was presented to the College of Physicians two years ago. This is a striking likeness of Dr. Agnew as he appeared at repose in later years.

The older members of the profession will best remember Dr. Agnew in the picture, which represents him as he appeared in war times during his years of hardest work. There are ten additional photo-gelatine cuts showing Dr. Agnew at various periods of his life. The book is also illustrated by a very excellent representation of the Philadelphia School of Anatomy on Chant Street.

The Agnew coat of arms is shown in colors, and also the ruins of the old forge where his unsuccessful business venture was located. The energy and assiduity with which Dr. Adams has pursued this work is well shown by the title-page illustration of the Japanese translation of Dr. Agnew's Principles and Practice of Surgery.

The first chapter is devoted to the history of the Agnew family, which is traced back to the year 1000, when they bore the name Agneaux in Normandy. This history, here compiled for the first time, shows that as a family they were strong, sturdy and vigorous, physically, mentally and morally.

The second chapter is replete with incidents in the early life of Dr. Agnew, who was born near Christiana, Chester County, November 22, 1818; the son of a physician and sprung from an ancestry remarkably earnest and God-fearing. The incidents of his course at the University of Pennsylvania, from which he graduated in 1838, are fully given. In 1892 only four members of this class were known to be living.

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It is clearly shown that from the outset of his professional life Dr. Agnew pursued the study of anatomy with special zeal; as he said of his dissecting rooms on Chant Street: "Those dingy old rooms had more attraction for me than the frescoed and fretted walls of a palace, and their anatomical odors were sweeter far than those of Araby the blest."

After his graduation Dr. Agnew practiced in Nobleville with his father; marrying three years later Miss Margaret C. Irwin, of Pleasant Garden, Pa. This union proved throughout his life a most helpful one, as her advice and example were a constant stimulation to him.

In Chapter III is given the history of Dr. Agnew's unsuccessful business venture. The narrative shows that it was undertaken not because he was tired of medicine, but simply because of the most flattering prospects held out to him in connection with his father-in-law's iron business. After three years of discouraging labor he found himself involved in debt, and it required many subsequent years of hard work to place himself in a comfortable position as regards his creditors.

He re-commenced practice at Cochranville, near Parkesburg, and applied himself with vigor to the study of anatomy. The story of his difficulties and trials in this practical pursuit of knowledge—which was exceedingly distasteful to his neighbors—is well told by Dr. Adams.

In 1848 Dr. Agnew became so thoroughly imbued with the idea that the study of anatomy and surgery should be his life-work, that he returned to Philadelphia and soon afterward commenced his work in College Avenue (Chant Street), which was the arena of many of his triumphs. The history of this school as given here is most interesting. For ten years in this old Philadelphia School of Anatomy he studied, dissected, lectured and operated with such earnest purpose and clearness of diction, that he attracted the attention of the entire profession of Philadelphia. He scattered his students throughout the whole United States, each one his friend and each one thoroughly cognizant of the fact that Dr. Agnew had given them the best possible anatomical and surgical teaching which was to be had in any country. In these lectures, as in his subsequent ones, he showed the peculiar talent for imparting knowledge to others, which resulted in their becoming interested in their subject, in making it perfectly clear to their understanding and in compelling them to retain it in their memories. Commencing with but nine students, he rapidly filled the room to overflowing, and when he left the place the class had assumed enormous proportions for a private undertaking. To a thorough knowledge of anatomy he added the calm skill of the surgeon. The Philadelphia Hospital had opened its doors to him, and in its wards and amphitheatre he continued the same effective teaching and work.

His many years of hard work and patient skill were beginning to bear fruit, and other positions opened before him. The War of the Rebellion brought him positions in Hestonville Hospital and the Mower Hospital at Chestnut Hill, where with others he had exceptional opportunities for surgical work. The Wills' Eye Hospital, the Pennsylvania Hospital and many others enlarged his work, but best of all for himself and for others the University of Pennsylvania called him in 1863 to be Demonstrator of Anatomy.

His earnest, quiet, but forcible power was recognized, and he became at once a great power in the school, and this power was never diminished during the nearly tnirty years with which he was connected with that institution of learning. Whether as Demonstrator, or as Professor of Surgery, he maintained his unostentatious dignified course, so that every student recognized his presence and was glad to acknowledge him as a master and a friend.

Dr. Adams then traces Dr. Agnew's life during the war and as Professor of Surgery at the University. A chapter is given to his original surgical work

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and his additions to surgical science. The author reviews most fully and elaborately Dr. Agnew's connection with the case of President Garfield, and shows how wise and satisfactory was his treatment and his steadfast course in connection therewith. As an example of his later writing, extracts from Dr. Agnew's address before the American Surgical Association in 1888 and his last didactic lecture are quoted.

Another extremely interesting chapter is devoted to Dr. Agnew's home-life, which was most tender and unostentatious.

In Chapter XIII Dr. Adams describes very fully Dr. Agnew's fiftieth jubilee in 1888, and gives in full the speeches on that occasion, when so many of Dr. Agnew's professional brothers assembled to do him honor. The later chapters of the work give the more recent and better known periods of Dr. Agnew's life and speak of the honors that were heaped upon him in his last days and at his death, closing with an estimate ot the character and services of this unique figure in surgery.

Altogether, this book is full of the most absorbing interest to the many friends of this grand old man, who lived and died so greatly beloved and honored by all.

A TEXT-BOOK OF MORBID HISTOLOGY FOR STUDENTS AND PRACTITIONERS. By ROBERT BOYCE, M.B., M.R.C.S., Assistant Professor of Pathology in the University College, London. With 130 colored plates. New York: D. Appleton & Co., 1892.

Under the above title, Messrs. D. Appleton & Co. have presented us with an enormous and very pretentious volume, which we are glad to see is called a "Text-book" rather than a "Hand-book." The binding is good and gives the book a capital recommendation.

On opening it one is at once struck by the plates, which are micro-photographs, and form the *big attraction*, being a sort of histological art-gallery, promising brilliantly, but proving sorrowful failures on close inspection. Mr. Boyce seems to be very fond of these pictures, but this is a common failing among artists, whose opinions are always more partial than those of their critics. We have gone over these photographs twice, both times carefully, and express it as our opinion that No. 66 (which is not a photograph), is the best illustration in the book. We find scarcely half-a-dozen that can be called good, and are obliged to express our inability to recognize the objects presented to us in many of them. Some are mere blots, whose irregularities are dignified by descriptive pointers. We challenge anyone to tell us what is represented in No. 108, before looking at the label!

By a peculiar fatality, or rather partiality on the author's part, plate No. 53, "Fibro-papilloma of the Scalp," appears a second time as No. 59, and is called a "Papilloma of the Scalp," to which we would not object so strongly were the figures good; as it is, we wonder that the plate was not introduced half-a-dozen more times with as many new titles for nothing of particular interest attaches to it. We fear that either the photographs or the method of reproducing them do not do justice to the author's specimens, and to us their representation of nature is much the same as in the modern "effect painting," where one sees a daub and is forced to imagine it a tree. We think a dozen well-drawn diagrams would have been worth the whole 130 micro-photographs used.

We hoped to find that in the text, which would compensate for the disappointment caused by the plates, especially when we observed in the preface, that no less than twenty-six gentlemen were thanked for assistance, which they rendered in compiling the book, but we were unable to do so. The intro-

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duction, by Professor Victor Horsley, to whom the work is dedicated, is good and interesting reading. The bibliography appended is voluminous, and we wonder that one whose reading has been as broad should not produce a better work of his own than that under consideration.

On page 17 we find these directions for staining the tubercle bacillus: "Use Neelsen's fuchsin and warm; leave the slips in it for half an hour or longer. . . . Treat with nitric acid mixture. Decolorize with spirit, and use a contrast stain if necessary." This is strictly speaking correct, but those of us who are in the habit of doing this every day, or who are accustomed to teach it to students, can best judge whether or not satisfactory results would follow such a brief explanation.

On page 335 we are told that miliary tuberculosis "is marked by rapidly spreading small round cell infiltration and caseation, giant cell forms being absent." Our experience does not coincide with this general statement.

The plasmodium of malaria is described briefly as the "Hæmatomonas," but is not figured. At the end of the book a brief mention is made of *psorosperins*, etc., but, again, without illustration.

We conceive that smaller type might have been used without positively injuring the eyes, and that thinner paper, than that employed, could have been used without being too transparent.

One of the most exasperating things about the work is the tendency of the author to refer the reader to plates and descriptions at remote portions of the book, a thing all very well in its way, perhaps, but too much when one is told to "compare the glomeruli in Figs. 30, 79, 97, 98, 99 and 103," on a single line of description.

The index, which is never neglected in a review, is one of the best things about the book, the references to authors being made a separate part. We wonder that this was not perfected by giving exact references when not cramped for room, instead of saying, "Recklinghausen, 224, 307, 343, 324 and 401."

We cannot prophesy for this work a very successful future, nor entrance into classic literature, unless it were to be re-written or revised and re-illustrated. At present it does not meets the demands of those for whom it is specially intended.

ESSENTIALS OF DIAGNOSIS ARRANGED IN THE FORM OF QUESTIONS AND ANSWERS. Prepared especially for Students of Medicine. By Soloman Solis-Cohen, M.D., and Augustus A. Eshner, M.D. Philadelphia: W. B. Saunders, 1892.

Books of this class require three essential attributes to which all else must give place, viz., accuracy, conciseness and clearness. In each of these the little book in question is satisfying. The statements contained in it are accurate and the diagnosis and distinctions of the various diseases set forth clearly and with conciseness.

We doubt, however, the wisdom of the adoption of the phonetic or anglicized method of orthography and are disposed to think this will prove confusing to students not accustomed to seeing such in their larger works. It would also have been wiser to have omitted the questions used in introducing each paragraph. It is certainly simpler and better to employ the one word "Symptoms" at the head of the paragraph than round-about sentences such as "What are the symptoms?" or "What symptoms are presented?" etc.

Beyond these criticisms we can only praise the thorough and careful manner in which the authors have done their work, and would particularly commend the introduction of the brief mention of the rarer forms of disease, of the nature of which students ought at least to have a general idea. We note, however,

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the absence of brachycardia, which should have a place next to tachycardia; and of obesity the symptoms of which require discrimination from other disease.

There is, of course, no place in a book of this nature for the introduction of personal views or experience, and we can only judge of its merits by the measure of its probable usefulness in conveying to students standard teaching. Viewed in this light, we can cheerfully commend the book to be used, as the authors wisely advise in their preface, as an adjuvant to larger works.

DISEASES OF THE STOMACH. By DR. C. A. EWALD, Extraordinary Professor of Medicine at the University of Berlin, Director of the Augusta Hospital, etc. Authorized translation of the second German edition, with special additions by the author, by MORRIS MANGES, A.M., M.D., Attending Physician to outdoor department, Mount Sinai Hospital, New York City, etc. With thirty illustrations. New York: D. Appleton & Co., 1892.

This book is composed of lectures intended for general practitioners, and is the second part of the *Klinik der Verdauungskrankheiten*, the first part of which has already been translated into English. Dr. Manges is to be congratulated upon the excellence of his translation, the manuscript of which has been read by the author who has made many additions thereto, so that the present work really represents the third German edition. These lectures are not intended to be an exhaustive review of the diseases of digestion, but rather a study of characteristic cases personally observed by the author. Lecture I. deals with the methods of examination and with the determination of the acidity and acids of the contents of the stomach. The former includes inspection, palpation, auscultation and mensuration. The use of the stomach tube is very fully considered. After introducing the tube, pressure on the abdomen causes the fluid contents of the stomach to flow from the tube. This has been called the "Ewald expression method." The various tests for acids and acid salts follow. Lecture II. is a continuation of the methods employed in examining cases. Lecture III. treats of stenosis and strictures of the cardia. Dilatation of the stomach receives that full consideration which its importance deserves. The manifold symptoms of this affection add enormously to the suffering of mankind. The author considers lavage of the greatest benefit in these cases. We are encouraged by the statement "that in scarcely any other place in the whole range of the therapy of diseases of the stomach can we attain such brilliant results as we can in the treatment of a case of protracted dilatation."

Caution is advised in accepting the presence of free hydrochloric acid in the stomach as positive evidence against cancer. A case is cited in which carcinoma was excluded by this means. Three weeks later the patient was operated on at his own request, when a malignant growth the size of a walnut was found surrounding the pyloms. Therefore the deduction: "that with a localized cancer and an intact mucous membrane, the secretion of hydrochloric acid may continue up to a short time before death." The consideration of gastric ulcer occupies sixty pages. We have in recent years become much better acquainted with this condition, and being able to recognize its early symptoms are prepared to give a more favorable prognosis than formerly.

The various causes of hematemesis are given, and the different forms of gastritis receive careful study as do also the gastric neuroses. The innervation of the stomach was written by Dr. Richard Ewald. The discussion of representative cases adds very much to the utility of the book, and the conversational style in which the matter is presented adds to the pleasure of reading. We have, perhaps, no more common functional troubles than those of digestion, and Professor Ewald's name is sufficient guarantee that what is latest and best in our knowledge of these affections has been incorporated in his book. We heartily endorse the work.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

Hysteria in Children.

Jolly (*Berliner klinische Wochenscrift*, August 22, 1892), begins his interesting paper with the statement that the mind of the child is relatively more easily understood than that of the adult, and that by a study of hysteria in children it may be proven to be a psychical disease, and observation of such cases will throw more light on the disease in adults. Frequently the affection is manifested by pain in a special part of the body. This is often accompanied by a spastic condition, which hinders the movement of the affected part; there may also be paralysis and anesthesia of the part. These conditions are most frequent in children who have been confined to bed for a long time, either with acute or chronic disease. When they attempt to get out of bed they feel pain or are weak, and thus may develop contractions or paralysis of the part. Usually, movement in bed to a certain degree, at least, is possible, and this stands out in strong contrast to the entire inability to move when out of bed. While hysterical paraplegia is most common, monoplegia and hemiplegia may be developed. The author has observed, especially after influenza, one-sided paresis and anesthesia. Tremors may also be a symptom either initial or following attempts at writing, gymnastics, etc. This tremor is of very varying severity and rapidity, and, as a rule, is diminished when the attention is withdrawn from the part and disappears entirely in sleep.

A seven-year-old child, which had been sick with measles, was affected with severe reflex spasms of both lower extremities. As quickly as the child attempted to stand the limbs would shake as in a chill; this would disappear as soon as she was laid horizontally in bed. After two treatments by the faradic current the affection disappeared. Usually, in children, this form is quickly amenable to treatment. Spasm of the respiratory and vocal muscles are very frequent. Such children often are affected with some form of stammering. A single letter may be dropped or slurred, and sometimes they may become speechless, especially in the presence of strangers. Sometimes it is accompanied by apparent deafness. An eleven-year-old child had an hysterical attack of crying and a confused condition. He was dumb in one attack three days, in another fourteen days. When the child was brought to the clinic he was deaf and dumb. All the means to make the child speak or to test its hearing failed; but once he blinked at a sudden noise produced under him. The examination of the ears showed them to be entirely normal; however, the physicians spoke in his presence of an operation to be performed to cure the deafness at the next clinic. One quarter of an hour before the clinic, the child suddenly began to talk to the other patients, but gave no evidence that it had understood what had previously been said in its presence. When there is an apparent blindness in the patient, though he appears not to see, he will turn out of the way of any obstruction put in his way and not stumble, as one, really blind, would not do.

Deep and perfect analgesia is not noticed in children so frequently as slight anesthesia. When children are affected by hysterical movements, such as dancing, swinging a circle and other absurd movements, it is usual to suppose that the intelligence of the child is affected, but the child will go on with his antics until it has convinced the onlooker that it is really ill; or when a stranger appears it will stop the regular movements, giving only an occasional turn, as though to test whether the newcomer had the kindness of the former person. It is often impossible to treat such a patient at home. But isolation and throwing cold water

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over the patient or squirting carbonic water from a siphon in the patient's face, will usually work a cure. The author believes these attacks have no connection with the uterus. They appear long before puberty—they are seen in boys as well as girls, and, therefore, gynecological treatment, except in rare cases, is not in place. However, the writer believes that in a few cases masturbation may be a causative factor. Of much more importance, from an etiological view, is the constitution of the child. Often the child inherits a nervous disposition, or has been the subject of long weakening illness, is not properly fed is anemic, or its parents are entirely without proper control of the child. The school is sometimes the cause-not that the overstudy does them harm, for such children are usually lazy and dull, and a severe teacher may punish them. Bright children, who are made hysterical by school attendance, become so more frequently through prolonged sitting in a hot room rather than by overstudy. He believes that children who are normally weak and have not yet been trained, find that if they complain of a headache or other slight illness, their tasks are remitted, and they soon learn to simulate attacks of real illness, which they have seen in other children. He believes that the study of such cases prove that hysteria is not due only to excitable reflex conditions, but that the disease only appears when the effect of the imagination is in connection with a nervous condition of the body.

Treatment of Cholera in Parisian Hospitals.

Kutner (*Deutsche medicinische Wochenschrift*, September 1, 1892), reports as follows on substances used to affect the intestinal contents. First, among these is lactic acid. The following recipe being used:

℞. Acid. lactic..... 15.
Syrupi.....100.
Aq. dist.....200.

In the beginning acute stage a tablespoonful of this mixture is given every half hour; later, every two hours. Immediately after the use of the above mixture, the stools become acid in reaction. Benzol napthal has been used, one dram a day, being given with good results.

Opium Preparations.—In one hospital (Necker) this drug has been used with good results in connection with lactic acid. In the Beaujon it has been used, but the results were doubtful. Galliard used it and has not found the least benefit in true cases of cholera. Bismuth has been used with uniformly bad results. Salol has not been useful. To control vomiting, ice, cocaine and chloroform water were given with good results. In all the hospitals, frictions, with warm water, are used. The diet was milk in small quantities, used to slake thirst.

A Case of Internal Hernia Heretofore Unobserved.

Langer (*Wiener klinische Wochenschrift*, August 25, 1892) reports the following case: A woman was admitted suffering from symptoms of intestinal obstruction. Medicinal treatment being unavailing, a laparotomy was done. The whole large intestine was found much contracted, as was the ileum at its junction with the colon. The ileum was traced backward with the hand in the abdomen. At a point in the left side of the pelvis the gut was fixed. Beyond this point it was widely dilated. The point of stricture was freed and the wound closed. The patient was at once relieved of the symptoms of obstruction, but died of pneumonia on the fifth day. At the post-mortem a knuckle of the ileum was found adherent to a spot on the left side of the pelvis in the following position: A beginning hernial sac was found commencing to protrude through the greater ischiatic foramen. The outer side of the sac rested upon the ileum, the inner upon the parietal peritoneum of the pelvic wall. The outer side of the sac was without a sharp edge and formed of the peritoneum which covers the psoas and iliacus muscles, while the inner edge was a sharp, half-moon-formed border composed of the parietal peritoneum. The fundus was in the greater ischiatic foramen. The literature of the subject, which the author has examined carefully, gives no similar case.

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Prevention of Contagion.

Cramer (*Berliner klinische Wochenschrift*, August 15, 1892), thus tabulates his rules in the hygienic treatment of contagious diseases: (1) Entrance to the sick room must be as infrequent as possible. (2) Every person must dress themselves in a loose over-garment on entering the room, and lay it off before leaving, after having disinfected himself. The door knob must be touched only with disinfected hands. The disinfection of the persons should consist in scrubbing the hands with soap and brush, and then immersing them in a one-tenth per cent. sublimate solution. (3) Articles may only be removed from the room after they are thoroughly disinfected. (4) The stools, urine and sputum should be received into vessels partly filled with some disinfecting fluid and allowed to remain for half an hour before they are emptied. (5) The bed linen must also be immersed in the same fluid, and kept there until they can be washed. (6) The dishes must remain in the room when possible, and only removed after they are disinfected. (7) The floor must be washed three times in the day with a damp cloth, and the cloths afterward treated as the bed linen. (8) The patient must not leave the room until he is twice bathed and afterward dressed in clean clothes. (10) The room must be disinfected when the patient leaves. Everything worthless must be burned. All the bed coverings must be washed in disinfecting solutions. The bedstead and all woods washed with a disinfecting solution. If possible, a steam disinfecting apparatus should be used. If that cannot be done then the room should be allowed to stand open for six hours.

Tuberculosis of the Heart Muscle.

Pollak (*Zeitschrift für klinische Medicin*, Band XXI, 1892), reports the twenty-seventh case of tuberculosis of the substance of the heart, which has been published. The infrequency of this affection may be judged by studying the pathological reports of the different hospitals. Of 845 cases of tuberculosis which came to section in Prag and reported by Willig, in only *two* cases was the heart muscle affected. In another series of 1,860 cases, in *no* case was the heart muscle the seat of the disease. The author gives an excellent review of the literature of the subject, for which the reader is referred to the original article. The subject of this article was a man aged 65 years. There was no hereditary disposition to tuberculosis. The patient had been troubled with cough for several years, but it was never severe. There had never been any hemorrhage or hectic. Examination of the chest showed dullness at the apex of the left lung. The impulse of the heart could not be felt. The heart dullness was normal. The heart sounds were weak, but free from murmur. The pulse was rhythmic and seventy per minute. The arteries were but slightly rigid. During the course of the disease there was but little cough, but the patient gradually became more cachectic and suddenly died. No diagnosis was made before death. The section showed peribronchitis and nodular pneumonia in both lungs. The pericardial sac contained one ounce of yellow serum. The walls were slightly adherent. The heart was of normal size and well contracted. In the septum of the right auricle and reaching to the tricuspid valve was a growth the size of a hen's egg; it was hard, mostly white, but there were yellowish spots scattered over it. The endocardium was free. There were tubercles in both liver and spleen. The growth in the heart wall consisted of connective tissue intimately combined with round cells. On staining sections of the growth, tubercle bacilli were demonstrated. The author analyzes the reported cases of tuberculosis of the heart muscles, and says that the affection while usually secondary, does occur primarily in that position as in one case reported by Demme, where no other part of the body was affected. Tuberculosis of myocardium occurs in the form of miliary or large growths, or it may be diffuse. Often there is but one form present at the same time, but frequently all three growths occur in the same specimen. The miliary form usually appears between the fibers of the muscle and along the capillaries. It occurs mostly with acute tuberculosis. The large solitary growth is more common and occurs in chronic cases. The diffuse form is rarest. Fourteen of the cases observed have occurred in children under fifteen. Nine between nineteen and forty years. Two at sixty and sixty-five. Sex has no influence on the disease. A diagnosis is usually impossible. In most of the cases there are no special heart symptoms.

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Subcutaneous Infusion in Cholera.

Kutner (*Deutsche medicinische Wochenschrift*, September 1, 1892,) thus summarizes Samuel's method:

(1) *The time.*—Immediately upon the failure of opium or tannic acid, enemata to control the loss of serum, or when the radial pulse becomes anomalous, subcutaneous injections should be used.

(2) *The point of injection.*—The infraclavicular fossa should be chosen, and should be used alternately. If absorbtion from this point ceases, the supraclavicular fossa must be chosen.

(3) The infusion is used continually during the stage of asphyxia and in the typhoid stage. He injects first two ounces of the fluid, waits until this is absorbed and then injects two drachms more, and continues in this manner until the pulse is re-established. If a swelling forms at the site of injection, he waits until the fluid is absorbed or selects another point. If the pulse is present this is repeated every five minutes. If it is entirely full it is repeated every half hour. Usually, eight to ten quarts are used in a single case.

(4) The fluid is made by adding one dram of pure salt to one quart of distilled water. The temperature must be between 102° and 104° F.

(5) *Instruments and technique.*—Over the head of the bed should be placed an Esmarch's irrigator with tube and stop-cock, or Collin's transfusion apparatus may be used (see p. 199). With a fine trochar an opening is made in the infraclavicular fossa, the stile is withdrawn and the canula allowed to remain in place. The gum tube is now attached to the canula, the stop-cock opened and the fluid allowed to flow.. If the liquid is not absorbed with the aid of massage, then a second trochar and canula are inserted in the other infraclavicular space and injection begun there. The convalescence of patients must be carefully watched; they are apt to attempt to overtax their strength. Scarcely any food must be allowed at first. The result of such treatment is surprising. The sooner the operation is performed the better the results. First the pulse returns, usually in the first half hour; then the cold, staring eyes assume a natural appearance; the painful breathing becomes quiet; the face muscles lose their rigidity; the skin becomes warm; a slight sweat appears finally, and usually, not before the eighteenth hour after the operation is begun, the secretion of the urine is re-established. During reaction diarrhea of fetid stools occurs; this, however, is a sign of convalescence.

A Case of Acute Leukemia.

Griewe (*Berliner klinische Wochenschrift*, August 15, 1892), reports the following interesting case: A man, aged 28 years, applied at the hospital February 26, 1892. His family and personal histories were good. He was never ill until three days before. At that time he lifted a heavy weight, and instantly felt a severe pain in the splenic region. On the next day, February 24, a considerable bleeding from the mouth occurred. There was continued and severe pain in the splenic region. On admission the skin and mucous membranes were observed to be highly anemic. On different parts of the body hemorrhages under the skin were noticed. The tongue was dry and thickly coated. The gums bled easily and were swollen. Except some tenderness in the region of the spleen, the physical examination was negative. The case was considered one of scurvy when the blood examination showed a typical condition of lymphatic leukemia. A more careful examination was then made, the lymphatic glands were found to be slightly enlarged, the largest the size of a hazelnut. The spleen was somewhat enlarged and extended below the margin of the ribs. The liver was somewhat enlarged. On February 28 much dark blood came from the mouth and nose. Death occurred March 6. Continued blood examinations and the post-mortem confirmed the diagnosis of leukemia. Before death the patient gave a history of a few slight hemorrhages under the skin before the acute outbreak of the disease. As no blood examination was made before the sudden onset of the disease, and on account of these hemorrhages previous to the acute stage, the author believes the disease to have existed before, and to have become acute by reason of the unusual exertion on February 23.

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COLLINS' TRANSFUSER.

Collins' transfuser (*Ibid*) consists of a funnel of about four ounces capacity—a pump, a chamber from which the fluid is distributed, a gum tube and a trochar and canula. The fluid is drawn from the funnel into the pump and driven from there through the canula. The chamber below the funnel communicates by means of three openings with it. These openings have a valve of aluminum, which is made of less sp. gr. than the fluid to be injected. The valve floats on the fluid in the chamber. When the piston of the pump is drawn out the valve is forced down and fluid enters the pump and chamber. Immediately the motion of the piston ceases or is reversed, the valve rebounds against the openings and prevents a return of the fluid to the funnel.

INTRAVENOUS INJECTIONS IN CHOLERA.

KUTNER (*Ibid*) quotes Hayem's proceedings as follows: A fluid is made of one thousand parts of distilled water to ten parts of sulphate of soda and five of common salt. The injection is made through a Collins' transfuser (see above) and two to two and a half quarts of the liquid may be injected at one sitting during a quarter of an hour. The effects are almost instantaneous, the pulse returns, cyanosis disappears and the breathing becomes regular and full. This method is recommended when there is great urgency of symptoms. The injection may be made in the saphenous vein, or in an arm vein.

TREATMENT OF CHOLERA.

NOTHNAGEL and KAHLER are quoted (*Deutsche medicinische Wochenschrift*, September 1, 1892) as follows: (*a*) Treatment of choleraic diarrhea: It is well to treat all attacks of diarrhea during a cholera epidemic as being due to the comma bacillus. The best method is to put the patient to bed; put warm compresses on the abdomen and administer a dose of opium. Laudanum may be given in tea, rum or cognac. Bismuth preparations are useless. All water must be boiled. Calomel can be used only in the very beginning of an attack. The stomach contents must be made acid by the use of HCl diluted. (*b*) Treatment of a well-developed attack: Cholera does harm by increase of bacilli in the intestinal canal, by the formation of a chemical poison which is taken into the blood and by dehydration of the blood by vomiting and diarrhea. The best manner to combat the growth of the bacilli is injections of solutions of tannic acid; one-half an ounce of tannic acid is dissolved in one-half to two quarts of water at 102° and slowly injected into the rectum. No article is known which will directly combat the poison in the blood, but the hot tannic acid enemeta are valuable. The third indication is best met by large hot enemeta or subcutaneous, or intravenous injections as above. In this stage ice cold champagne, cognac and camphor are administered. For muscular cramps morphine injections.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

OXYCHINASEPTOL.

A description of this new antiseptic is given by EMMERICH in the *Münchener medicinische Wochenschrift*, 1892, No. 19, and the results of its employment clinically by Kronacher in the same journal. Kronacher used it in the form of powder, pastilles and

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solution. A one per cent. solution was employed in the treatment of ulcers, burns, abscesses, etc., also in fresh wounds and operative procedures. The results were quite satisfactory, no signs of the drug affecting the constitution being observed. The finger nails were stained a light yellow color, but not the skin. It did not produce any local irritation. Unplated instruments are discolored by the drug, so that it cannot be used for the purpose of disinfecting them. A blackish precipitate may be thrown down in the wound, which is, however, innocuous. Kronacher regards oxychinaseptol as a valuable antiseptic.

A Simple Method of Promoting the Healing of Wounds in Bones.

Emil Senger, in the *Centralblatt für Chirurgie*, No. 32, 1892, p. 652, describes his method of treating wounds of the bones in which the periosteum has been lost. It is as follows: The wound is to be treated antiseptically with moist dressings for a few days, then with a chisel the external table, or at least a part of it, is to be chiselled off so as to expose the blood-vessels beneath. A moist dressing being again applied, in a few days granulations begin to spout up and in a few more will have spread all over the exposed area. Naturally, this procedure is not to be attempted in progressive phlegmonous troubles.

Are Microbes Normally Present in the Hernial Sac Secretions?

Roosing, in the *Centralblatt für Chirurgie*, No. 32, 1892, gives the results of his investigations regarding this question. Nepveu found microbes present in the secretions of the hernial sac in cases of incarcerated hernias even when the intestines appeared perfectly normal. Garré and Bönnecken each examined eight cases, and while the former only found microbes in one case and those of a non-pathogenic variety, Bönnecken found them in all eight. Garré concluded that if the gut was intact, the microbes would not go through and be found in the sac water, while Bönnecken held that they would always be found after four hours of obstruction. The author submits the results of his examination of five cases. In no case was the incarceration under twenty-four hours, and in one it was forty-eight and another seventy-two. Microbes were absent in these five cases, both in the examinations with the microscope and the attempted cultures. Therefore the author believes with Garré in the absence of the microörganisms, and cites Waterhouse, Grawitz and Kraft as being in accord with this view.

Two Cases of Spontaneous Luxation of the Hip following Acute Rheumatism of the Joints.

Ruch, in *Deutsche Zeitschrift für Chirurgie*, Band. XXXIII, Heft 6, gives the histories of two cases of spontaneous luxation of the hip following rheumatism, together with a review of the literature of the subject. The first case was that of a young man, aged 17. He had had rheumatism in the knee and hip-joints, and after recovering somewhat and going around, while pushing a wagon, felt something give way in his hip and experienced great pain. He went to bed and after four weeks again began walking, but with difficulty. Examination revealed a luxation of the head of the femur downward and forward, the bone being rotated outwardly with four centimetres of lengthening. Under an anesthetic the bone was replaced in its socket without difficulty. The patient was kept in bed eight days and then again attempted walking, when the leg was found shorter than its fellow and rotated inward, being also slightly flexed. He complained of pain. This time it was found impossible to replace it, and an operation was resorted to, the head of the bone being removed. Case two was a young woman, aged 24. She had been affected with rheumatism of the left knee and hip. A dislocation of the head of the left femur gradually took place on the dorsum ilii. There was crepitation on movement. Reposition having been found impossible, even with the aid of anesthesia, the head of the bone was excised. Its cartilaginous surface was found roughened and the acetabulum filled with fibrous material. Recovery took place with a shortening of four centimetres.

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Carcinoma of the Rectum.

McKosh (*New York Medical Journal*, 1892), describes an operative procedure which he has adopted in five cases:

A vertical incision is made in the median line from the posterior border of the anus backwards as far as the tip of the coccyx, and, if necessary, it is extended upwards as far as the middle of the sacrum. If the lower part of the rectum is healthy and does not need removal, this incision is deepened until the posterior part of the rectum is exposed. The gut is then divided across below the disease, having its lower segment attached to the anus. If this segment is not more than one or two inches in length, it is better to divide it, and at the same time the sphincter muscle vertically through its posterior part. If the lower part of the rectum is diseased and needs removal, it is left unopened, and two semi-circular incisions are carried round it, meeting in the perineum in front of the anal opening. In either case a ligature is tied around the lower part of the rectum to prevent the escape of feces and to be used in handling the gut.

If the incision to the tip of the coccyx does not give sufficient space then the coccyx, and, if necessary, the lower part of the sacrum may be removed. The separation of the rectum is then effected by dissection with blunt scissors until one gets beyond the diseased part.

To control the hemorrhage sponge pressure is recommended in place of forceps. If the anal portion has to be removed the entire gut is drawn down until the diseased part is beyond the margin of the internal wound; the rectum is then amputated about an inch above the upper limit of the disease and united by sutures to the edge of the external wound. If the lower part, with the sphincter muscle and anus, has been saved, the segment of gut occupied by the disease is resected, so as to leave some healthy gut to which the lower end of the proximal part is sutured. The external wound is then partly closed by sutures, drainage being effected by tubes and iodoform gauze. If the peritoneal cavity has been freely opened, no attention to closing the cavity by sutures is paid, but the wound below is packed with iodoform gauze.

The bowels are kept constipated for four or five days, and during this time the gauze packing is left unmolested. After the bowels have been opened the gauze is removed, the wound irrigated and repacked. Five cases of the author's were treated in this manner with good results. The statistics of the various operations have also been collected, and out of 375 cases operated upon by posterior incision, 32 were perfectly well at the end of four years. One of Kocher's cases was still well after sixteen years, and one of Czerny's after twelve years.

The author concludes by saying:

(1) The mortality is only about nineteen per cent.

(2) Cases can be operated upon in which the disease has extended into the peritoneal cavity.

(3) Certain cases are permanently cured; about ten per cent.

(4) In patients who have a recurrence of the disease, incision gives a longer and more comfortable life than colotomy.

Five Hundred and Seventy-two Tracheotomies for Diphtheria.

Habs, in the *Deutsche Zeitschrift für Chirurgie*, Band. XXXIII, Heft 6, gives the statistics of 572 cases of tracheotomy for diphtheria, occurring in the service of Professor Hagedorn, of Marburg. They were performed during the six years from January 1, 1886, to December 31, 1891. Of that number 316 died and 256 recovered, a mortality of 55¼ per cent.—a good showing. The operations were done in the diphtheritic ward of a general hospital, but separated from it. It contains sixteen beds. In cases with obstructive symptoms an ice cravat was applied and salt solution 0.6 per cent. administered by inhalation. Internally the following was given: Liq. Ferri sesquichloridi, 2.0; Potassii chlorici, 4.0; glycerini, 5.0; aquæ ad., 200. A teaspoonful to a dessertspoonful every two hours, according to age, and a gargle of permanganate of potash or acetate of aluminum. Emetics and

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bleeding were not employed. Operation is proceeded with when there is distinct commencing cyanosis, inspiratory descent of the larynx and drawing in of the ensiform process, which is not relieved by the ice cravat. The child is stripped, placed on a table with a pad beneath the shoulders, but the neck is not to be stretched too much, as that will interfere with the breathing. Chloroform is used in every case in which the child is not asphyxiated or in a state of collapse with a weak pulse. Inferior tracheotomy was done almost exclusively. A five to eight centimetre incision is made from the cricoid cartilage to the suprasternal notch. Two hooks are then inserted in the tissues and pulled apart, thus separating the tissues in the median line. If the fascia at the lower end of the thyroid gland is too thick to be torn through it is first raised with forceps and nicked with a knife. The trachea is to be well cleared and all bleeding stopped. An assistant then fastens the trachea with a sharp hook while the operator divides from below upward the upper three or four tracheal rings. While the trachea is being opened the assistant closes the eyelids of the child to prevent the eyes becoming infected by extruded material. The canula is to be well oiled in order to prevent any secretion adhering to it. The operation takes from one to five minutes. In one case death occurred on the eighth day from erosion of the common jugular vein. Another case also died, on the eleventh day, from bleeding; but its origin could not be determined. A third case recovered by the use of digital compression and the use of a tampon. In the after treatment the child is covered with a rubber cloth, in which there is a hole through which the head of the child protrudes. A spray of salt solution 0.6 per cent. is kept going for one and a half hours, and then intermitted for a half hour, to be again resumed. If bleeding occurs the wound is to be opened, and if extra-laryngeal the vessel is to be tied, or if compression stops the flow of blood a tampon is to be put around the canula. Any blood that has entered the trachea is to be aspirated out by means of a syringe and soft catheter. Infectious troubles are to be met by removing all stitches, making free incisions and the application of ten per cent. chloride of zinc solution. Ulceration of the trachea by the canula is to be recognized by blood in the expectoration; it is to be treated by inserting of a shorter canula or altering the curve. The canula is usually removed from the seventh to tenth day, the wound closing three to six days later.

PROCTO-PLASTIC OPERATIONS FOR THE CURE OF CICATRICIAL STENOSIS OF THE ANUS.

KROUSE (*Medical Record*, October 29, 1892) reports the case of a boy who was brought to him on account of difficulty in defecation and constantly soiling his clothes. He presented, on examination, a healthy appearance. Looking at the region involved, it was found that the lower outlet of the pelvis was one mass of cicatricial tissue, limited anteriorly by the scrotum, extending posteriorly nearly to the upper part of the sacrum and encroaching on each side on the buttocks.

The scar tissue was pale in color and glossy in appearance, showing that the parts had been healed for some time. It was not of uniform thickness, but seemed to be much thicker behind the anus and on each side of it than in front.

Near the anterior portion of the cicatrix was an oblong opening, compressed from side to side, with its greatest diameter from before backward, which opening led in a funnel-shape to the anus. This was filled up with fecal matter.

On attempting to introduce the little finger into the anus, it was found that this orifice was so small that the tip of the finger could not enter, and that the orifice was patulous, being held open by the dense cicatricial tissue of which its walls were formed.

All attempts to absorb this cicatricial tissue were useless and an operation was decided upon.

A modified Dieffenbach's operation was performed, which consisted in splitting the contracted orifice anteriorly and posteriorly. The anterior incision extending into the healthy submucous tissue; the posterior cut was carried back into the dense cicatrix to the extent of about half an inch. A tongue-shaped flap of skin, an inch and a half in length by three-quarters of an inch in width, was then dissected from the scrotum and perineum and slid back into the anterior incision and attached to it and the gut by numerous silk sutures. Into the posterior cut another flap of skin was sewed, but this flap did not come from the

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immediate vicinity, but was dissected from the healthy tissue of the left buttock outside of the scar. The patient rallied nicely from the operation. The bowels did not move for several days. There was no rise of temperature. There were no unfavorable sequelæ in the progress of the case.

The patient was discharged at the end of the third week with an anus that readily admitted the index finger. The boy recovered perfect control of his sphincter, and the passages were of normal shape.

Some Modifications of Thiersch's Method of Skin-Grafting.

Watson (*Boston Medical and Surgical Journal*, October 27, 1892) gives the following modifications of Thiersch's method adopted by him:

(1) The substitution of a four per cent. boracic solution for the sterilized salt solution, both during the operation and in the subsequent dressings if wet dressings be used.

(2) Instead of the frequently repeated moistenings of the grafted surface and the dressings, it is sufficient to wet the gauze dressing once in twenty-four or forty-eight hours with boracic acid solution; the gauze dressing being covered over the outside by a rubber or gutta-percha tissue.

(3) If the dressing remains odorless it need not be removed until at the end of from four to six days after its first application.

(4) Perfectly successful immediate results may be obtained under the use of dry sterilized dressings—healing taking place under one dressing. (This plan I have not tried, however, sufficiently often to be able to say from personal observation if the good results are as invariable as under wet dressings, or if the skin of the newly-healed surface is as sound ultimately.)

(5) It is unnecessary to curette the surface to be grafted, provided it be covered by healthy, fresh, red, flat, granulation tissue. This omission saves the time which is required to still the bleeding which follows curetting.

(6) Where, under a reverse condition of the exposed surface, curetting has been done, the application of an Esmarch bandage and tourniquet, when possible, and the leaving of the latter in place for from one-half hour to an hour after the operation has been completed is of decided advantage.

(7) It is not necessary to the success of the operation that the whole of the exposed surface should be covered with grafts at any one time. The patient may be in a too exhausted condition to allow of the prolonged etherization necessary to cover an extensive area; if so, there need be no anxiety as to the result if but a portion of the surface be grafted at one time.

Dr. McBurney recommends that the skin be stretched from which the grafts are taken.

Bacteriological Experiments on Urinary Infection.

Ali Krogins (*Centralblatt für Chirurgie*, No. 42, 1892) says, the general cause of urinary infection is ascribed to be the result of the action of the bacterum pyogenes, or the "bacillus non liquefaciens." The bacillus is extraordinarily polymorphous, and is thought to be identical with the bacterium coli commune of Escherich. In certain cases where the infection has been virulent, the uro bacillus liquefaciens septicus is probably the cause. This organism is identical with the proteus vulgaris.

These two forms of bacilli are not found alone in pathological urine, but also in urinary abscesses; in abscesses of the kidney; in the blood, and in the intestinal canal.

Both organisms are pyogenic and seem endowed with extraordinary virility.

The bacterum coli can be found in the urine when there is no coexisting lesion of the urinary apparatus.

The proteus vulgaris is generally the result of a cystitis.

The staphylococcus pyogenes can give rise to the most virulent infection.

In other cases the gonococcus or other micrococci may occasionally be the cause of infection.

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Red Suppuration.

Terchmin (*Centralblatt für Chirurgie*, No. 41, 1892), says, that in the surgical clinic of Charkow there appeared in two years fourteen cases of red suppuration. It was noticed only in fresh wounds, and at the first dressing, but in one case was seen two weeks after the operation. The red color was not on the wound surface, but was found in the immediate neighborhood of the wound.

The odor of the red pus is quite different from that of the blue. The color is generally light red or color of cinnabar. The experienced eye can easily distinguish it from blood spots. As the cause of this condition there exists a bacillus, about one-third of the diameter of the red blood corpuscle in length, and about as broad as the pneumococcus of Frieldländer.

The ends are evenly rounded, and at times appear much thicker than normal.

The organism thrives best at a temperature between 36–37° Centigrade. By lower temperature the cultures are but few, and produced but little coloring matter. In direct sunlight the color becomes pale and cloudy.

Experiments were made, with pure culture, on mice, rabbits and dogs. The mice remained entirely immune. In rabbits there was high fever, loss of appetite, diarrhea, slough at point of puncture, and death in three or four days.

The presence of the organism does not appear to influence materially the process of healing.

The So-called Raynaud's Disease of Syphilitic Origin (Gangrena Symmetrica).

In the *Archiv für Dermatologie und Syphilis*, 1892, p. 577, Elsenberg gives the clinical history and autopsy of a case of this disease and discusses its pathology. The patient was a slender, ill-nourished man of 22 years of age. On the left cheek were several irregular, four-cornered, dark violet spots, one-half to one centimetre in diameter. Two smaller but similar spots were on the left side of the chin. The front of the chin also was affected. On the right cheek were spots similar to those on the left, but differing slightly in color. The skin of the buttocks and lower extremities was brown and showed dark red spots, which did not disappear on pressure. There was ulceration of some of the fingers, and the back of both hands was dark violet or almost black in color, it was also anesthetic. There were also patches of ulceration on both lower extremities below the knees and parts of the feet were gangrenous. The temperature varied from 38.2° to 40.2° centigrade. The gangrene extended, intractable diarrhœa set in and the patient died in collapse. There had been no sugar, nor albumen in the urine, neither was there any affection of the heart or large blood vessels. Specific treatment had been tried, but was so badly borne that it had to be suspended. The patient was thought to have contracted syphilis from her husband. On post-mortem examination a gumma of the liver and other evidences of syphilis were found, thus proving the specific nature of the disease. The article concludes with a synopsis of the literature of the subject.

The Radical Cure of Large Femoral Hernias.

Salzer, in the *Centralblatt für Chirurgie*, August, 1892, reviews the methods of treatment of femoral hernias and submits his own plan. Billroth sews with silk thread the inner third of Poupart's ligament with the deep fascia of the adductors, or the inner portion of the fibrous sheath of the femoral vessels. Czerny uses catgut. Schede sews Poupart's ligament to the adductor fascia with catgut, silk or silver thread. Since 1887 Schede uses silver, as he finds it to be more secure than the others. The silver is allowed to remain in. Lauenstein, who employs Macewen's method for inguinal hernia also in the femoral variety, in one case sewed Gimbernat's ligament and the processes falciformis together. Paul Berger, after fixing the ligated stump of the hernial sac above Poupart's ligament, applies three or four mattress sutures, uniting the aponeurosis of the pectineus muscle with Poupart's ligament. It is necessary, Berger says, to keep the thigh flexed on the pelvis during the period of healing. After more or less unsatisfactory results from endeavoring to produce a plugging up of the canal by foreign bodies and inflammatory material, the

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author employed the following procedure: The hernia sac having been ligated and removed, a short, broad, strong flap is raised from the pectineal fascia. It begins on the crista pectinea and ends at Gimbernat's ligament, being convex anteriorly. This is to be brought up and sewn with silk to the inner third of Poupart's ligament without tension. The skin wound is then to be sewn shut. In the author's case healing by primary intention occurred and the patient wore no truss. Examination of cadavers have shown the author that the fascia pectinea varies in thickness, and that in old people it is sufficiently strong to resist considerable pressure, but that it will be found thicker in those who have worn a truss for a long time.

The Treatment of Buboes by the Wallander Method.

Spretschka (*Centralblatt für Chirurgie*, No. 37, 1892), describes two different methods that may be adopted in the treatment of buboes:

(1) Early and complete removal of the diseased glands.

(2) Consists in adopting such measures as the application of ice, tincture of iodine, poultices, etc., to prevent the formation of pus. If there is suppuration of the gland then only a small incision is made and the detritus removed with a curette.

Wallander has had most favorable results from the injection of benzo-quicksilver into the diseased glands. Of the sixty-two cases treated by the author twenty-three could only be cured by the use of the above-named remedy. One or two injections can be made in the centre of each gland. After the injection there is considerable increase of the pain, marked increase of temperature, while often a drop of pus may be seen at point of puncture. There is often great increase in the swelling, but in from twelve to twenty days begins to disappear.

The second group comprises twelve cases. In these a small incision was made along with the injection, because after the injections fluctuation was noticed. The incision was scarcely a centimetre in length, and after allowing the pus to drain off the cavity was washed with a solution of corrosive sublimate 1 to 1000, the cavity closed, and the whole dressed antiseptically. A cure was obtained in these cases on an average of about twenty-eighty days.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D., AND FRANK W. TALLEY, M.D.

Symphysiotomy, with the Report of an Operation.

Hirst (*Medical News*, Vol. LXI, No. 16), successfully performed symphysiotomy upon a German woman, aged 19 years, primipara, in the University Maternity. The pelvic measurements were as follows: iliac spines, 25 centimetres; iliac crests, 27 centimetres; transverse, 30.5 centimetres; external conjugate, 18 centimetres; diagonal conjugate, 9.5 centimetres; conjugata vera, 7.75 centimetres. When seen by Hirst, patient had been in labor over forty-eight hours, the pains were vigorous, contraction-ring high, uterus standing almost straight out from body, and child's head movable above the superior strait. Membranes were yet unruptured. As the head could not be made to enter the pelvis by any justifiable degree of force and the fetal heart sounds were good, Hirst decided upon symphysiotomy. At the time the incision was made the os was only the size of a silver dollar. After separating the pubic symphysis forceps was applied, and a living child extracted in one hour and four minutes. Head measurements of child: bi-temporal, 7.5 centimetres; bi-parietal, 9 centimetres; fronto-occipital, 12 centimetres; mento-occipital, 13.5 centimetre s circumference, 34 centimetres.

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Concerning Puerperal Septicemia.

Labadie-Lagrave and Bassett during the discussion of puerperal septicemia at the First International Congress for Gynecology and Obstetrics (*Münchener medicinische Wochenschrift*, Jahrgang 39, No. 41), emphasized the fact that since the adoption of antisepsis the cases of puerperal fever have changed, in that epidemics have disappeared, the single cases are less severe, and, with or without localization, follow a less prolonged course. The bacterial examination of the lochia and the blood gives in such cases the following result:

(1) In the commencement of the disease are found in the lochia and blood micrococci, diplococci in motion, and streptococci in chains of eight to ten links.

(2) With the cessation of the fever the chains become fewer and have only three or four links; the micrococci persist, and only by their complete absence can a cure be regarded perfect.

(3) The micrococci must be regarded as weakened streptococci, as by their cultivation chains of eight to ten links are formed.

(4) In prolonged cases in which only cocci and diplococci are present, chains will appear in the event of localization. They disappear again with the fall of the temperature. The streptococci are the virulent form of micrococci.

(5) The reappearance of chains shows that the patient is threatened with a new localization.

(6) This appearance can take place three or four times in a case, according to the number of gradually appearing localizations.

Cesarean Section for Mollities.

Solowij (*Centralblatt für Gynäkologie*, No. 38, 1892) reports the following case in which he operated a short time ago: Patient, a III-para, aged 26; the previous children born naturally, were very small. She had suffered from severe pains in the sacrum and thighs for three months before her menses stopped. After she had become pregnant the pains increased and at the fourth month she could hardly walk. Solowij examined her during the sixth month and recognized a large fetus in the uterus, and pelvis so contracted by mollities as to require craniotomy or abdominal section at term. As the disease in the bones was progressing Fehling's operation was indicated. Three weeks after term the pains set in, head presented. Fetal heart sounds were clearly audible. About five hours later the os being well dilated and membranes ruptured, the operation began. After opening the abdomen the uterus was drawn forwards and abdominal wound held together with forceps. The uterus was then laid open, the placenta, presenting, was removed and the child speedily delivered. The membranes were peeled off, the uterus compressed by an assistant and ten deep and twenty-five superficial silk sutures applied to the uterine wound. The uterus had contracted strongly. Both appendages were then removed. The ovaries were very small. By the tenth day the pains in the bones had almost disappeared. A few weeks after, a small abscess, which had formed in the lower third of the abdominal wound, opened and discharged. It was then discovered that there was adhesion between the abdominal cicatrix and the uterus inferiorly. The child died of intestinal catarrh from bad nursing. As mollities is evidently cured, or at least relieved by oöphorectomy, Solowij considers that it should always be performed in the course of a Cesarean section where the patient is subject to that disease.

Cesarean Section for Elongated Cervix in a Gravid Uterus.

Aalsmeer (*Nederlandsch Tijdschrift voor Verloskunde e Gijnæcologie*, Band III, No. 2) performed Cesarean section for dystocia due to an elongated cervix uteri. The cervix was 17 centimetres (6¾ inches) in length, and very narrow, scarcely admitting the little finger. The waters had escaped. Considering the danger of version after amputation of the cervix, Aalsmeer decided upon the Cesarean section which he successfully performed, extracting a living child. The patient made a good recovery in twenty-two days. The cervix after recovery measured 4 centimetres (1¾ inches) in length.

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A Case of Myoma of the Uterus as a Hindrance to Birth.

Leibholz (*Berliner klinische Wochenschrift*, October 10, 1892), was called to attend a woman 41 years of age, in labor with her ninth child. Her previous labors had been difficult, and only four of the children were born living. She had experienced labor pains for five days. For twenty-four hours she had been under the observation of a midwife during which time there was perfect dilatation of the os, with no attempt of the head to enter the pelvic canal. By external examination a greatly distended abdomen was noticed; to the right and left above and over the crest of the ilium on the left side were child's parts, which led Leibholz to diagnose twin pregnancy. Small child's parts were found to the right, a little below the two large parts. Heart sounds heard clearly to right from linea alba. The internal examination gave a perfectly dilated os, with bulging, tightly stretched membranes. The head was movable over the superior strait and deflected a little to the right. Diagonal conjugate 11½ centimetres. Small, pelvis roomy. On rupturing the membranes the funis prolapsed. The cord was replaced, but frequently returned and was pressed upon. The patient was chloroformed and version performed with considerable trouble. The drawing of the cord into the pelvic canal was extremely difficult, requiring a half hour's constant traction, during which time the child died. The uterus after the termination of pregnancy was so distended that its cavity was examined. This was found to be empty. In the left uterine wall was a tumor reaching below to the pelvic entrance, felt easily through the abdominal walls and appearing, immediately after delivery, as large as an adult's head. Puerperium was normal, the woman assuming her duties in fourteen days.

A Case of Spontaneous Umbilical Hemorrhage in the Infant.

Walsh (*Virginia Medical Monthly*, Vol. XIX, No. 8) attended in her confinement a colored primipara, aged 17 years. The labor was normal and at term. On the second day the cord dropped off. On the tenth day hemorrhage from the navel occurred and was treated with liquor ferri subsulphatis and pressure. The bleeding was only checked for a short time. Collodion and compress were next resorted to, but the hemorrhage increased in severity. Three and a half hours later, the hemorrhage continuing, two needles were passed at right angles through the abdominal wall at the umbilicus, and a silk ligature passed around them. This checked the hemorrhage entirely. Tincture of the chloride of iron and sulphuric acid were administered internally. Next day a small quantity of blood was passed by the bowel. The child continued to grow weaker and died two days later. At the autopsy no cause for the hemorrhage could be found.

Symphysiotomy with Favorable Result for Mother and Child.

Desiderius von Velits (*Centralblatt für Gynäkologie*, No. 40, 1892), has performed a symphysiotomy in the Königliche Frauenklinik, at Pressburg, with good result. His patient was 21 years old and a III-para. The two previous labors had been terminated by perforation. Patient was 144 cm. in height, with crooked, rachitic tibia and lumbar lordosis. Pelvic measurements: spines of ilia 26 cm.; crests 27 cm.; external conjugate 16.5 cm.; diagonal conjugate 9.5 cm.; conjugata vera 7.5 cm. Double promontory. Pelvis narrow, flat, rachitic. The head was presenting, membranes ruptured. As the energetic pains were inefficient to force the head through the superior strait, and signs of beginning asphyxia of the child were apparent (discharge of amniotic liquor mixed with meconium, and irregularity of the heart sounds) symphyseotomy was performed.

A 5 cm. long incision was made in the regio pubica in the direction of the linea alba and carried down, layer by layer, until the symphysis was reached. Some veins above the clitoris were wounded and ligatured. The tendons of the recti were separated and the index finger of the left hand inserted behind the symphysis. The joint was then cut three-quarters through with a blunt-pointed curved knife. There was a separation of from 1 to 1½ cm. Two assistants made lateral pressure over the trochanters. Forceps was now applied to the head. On light traction the remaining part of the symphysis separated with a perceptible jerk, and the head descended immediately into the pelvis. There was then 4 cm. separation

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of the symphysis. Head was easily delivered, and the assistants brought the joint in apposition by pressure over the trochanters. The cord which was around the child's neck was quickly severed and the asphyxiated child extracted and resuscitated. The wound was closed with silkworm-gut sutures, including in the stitch the tissues attached to the pubic bones. A flannel bandage was applied to the hips, and over this an elastic girdle. The child, a male, 51 cm. long, weighed 3200 gm. Head measurements: bi-temporal 35 cm.; bi-parietal 9.25 cm.; fronto-occipital 11.5 cm.; occipito-mental 10 cm.

Owing to the painful pressure of the elastic girdle it was replaced by a narrow binder provided with buckles applied over the trochanters. The legs were tied, but could be moved actively from the first. Stitches were removed on the fourteenth day, when a small stitch abscess was found. Around the symphysis was a considerable formation of callus which thickened it 5 cm., and projected in front. The bones were well united. Patient left her bed on the twenty-second day, and the institution on the twenty-sixth after operation.

The author suggests the use of plaster-of-Paris or silicon bandages for fixing the pelvis after the operation, and advises the careful padding of the trochanters with horse-hair cushions, for the avoidance of pain and even pressure necrosis.

Extrauterine Pregnancy.

A. Martin, in the consideration of extrauterine pregnancy before the First International Congress for Gynecology, held in Brussels, September 15, 1892 (*Wiener Medizinische Wochenschrift*, No. 41, 1892), drew the following conclusions:

(1) The etiology of extrauterine pregnancy is yet veiled in the deepest darkness. The question cannot be solved before the physiology of pregnancy is explained.

(2) Most frequently the egg is implanted in the tube. Ovarian pregnancies are less seldom, and the abdominal insertion of the egg is doubtful.

(3) The diagnosis of ectopic pregnancy is a diagnosis of probability, with the exception of those cases where we observe the development of the fetal membranes outside the cavity of the uterus, or can determine the development of an intrauterine decidua without a separable chorion, or when we discover the fetus.

(4) The development of an extrauterine pregnancy ends seldom in retrograde metamorphysis (Lithopædian, mumimfication) without the occurrence of some event.

(5) Usually the death of the ovum takes place through hemorrhage in the fetal membranes or in the ovum itself. The blood finds entrance to the abdominal cavity through the ostium of the tube (tubal abortion), or through rupture of the tube in its continuity; it is found either in the peritoneal cavity or in the ligamentum latum. The hemorrhage seldom ceases. Death usually occurs from anemia or peritonitis, the true nature of which is unexplained. The ectoptic pregnancy should be regarded as a dangerous neoplasm, and handled accordingly. The cases which progress to the end of pregnancy are so very rare that regard for the child is entirely secondary to that of the mother.

(6) The conclusion is that the operative treatment shall, so soon as possible in all forms of ectopic gestation, be instituted. The fetal sac must be shelled out when possible. The treatment by subcutaneous injections of morphia produces very slow healing. The electric treatment cannot yet be judged according to its true worth, as the cases as yet treated by this method have not been sure in their diagnosis.

The Induction of Labor-pains by Intrauterine Injections of Glycerin.

Pelzer (*Archiv für Gynaekologie*, Band. XLII, Heft 2) advocates the injection of glycerin between the fetal membranes and the uterine wall, considering it a safe and efficient means of stimulating uterine contractions. This he does with a syringe and a catheter, carefully avoiding the injection of air or the rupture of the membranes, after placing the patient in the knee-elbow or semi-prone position. One and three-quarters to one and a-half ounces will be required. Pelzer has used this agent in five cases for the induction of premature labor. In four of the cases labor-pains were experienced within an hour and the patients were easily delivered; in one of the cases the membranes were ruptured during the injection, thus vitiating the evidence. The author has also satisfactorily used the expedient to stimulate the uterine action when the pains, during labor, had become feeble.

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GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.

ASSISTED BY

WILLIAM A. CAREY, M.D.

Extirpation of the Uterus for Carcinoma.

Olshausen, in a paper read before the recent Surgical Congress, stated that the operation of total extirpation of the cancerous uterus had been much undervalued and that it would vie with a similar treatment of other organs and especially with extirpation of the cancerous rectum. The favorable result depends principally upon antisepsis. The remote results were influenced less by the method of operating than by the manner in which the diseased organ was prepared for operation. During the past four years 32 per cent. of all the cases of carcinoma uteri under his care had been subjected to the radical operation. In 197 cases of total extirpation of the cancerous uterus, per vaginam, the mortality had been 12.7 per cent. Other operators had reduced the rate to as low a figure as 3.5 per cent. The permanent results had been good, especially so when compared with rectal operations. Thus, in one year out of 352 cases there had been 58.5 per cent. of cures; after the lapse of three years, out of 247 cases, 38.9 per cent. of recoveries, determined for the most part by examining the patients. Recurrences still took place during the third and fourth years, but very rarely during the fifth year. After the lapse of five years there was no return of the disease among 400 cases. Among the cases operated upon by himself there were some that had had no return of the disease during nine years.—*Medical Press*, August 17, 1892.

Treatment of Subinvolution of the Uterus.

Poulat (*Centralblatt für Gynäkologie*, April, 1892) has found the following methods of treatment to be most beneficial in recent and old cases of subinvolution:

In the former cases he recommends freedom from exercise with antiseptic injections. Hot baths and hot douches may be advantageous additions in some cases.

For the cases of longer standing the patient's general condition must be investigated, tonics and alteratives administered and hygienic measures carried out. Ergot has not been so satisfactory in Poulat's experience as hydrastis has been in securing contraction of the tissues. In reference to local treatment he advises curetting the endometrium in cases of fungoid vegetation; also prolonged hot intrauterine injections with antiseptic precautions. Electricity, massage and ignipuncture are also serviceable methods of treatment.

Supravaginal Hysterectomy Without Ligature of the Cervix; A New Method.

B. F. Baer (*American Journal of Obstetrics*, October, 1892) read a paper before the American Gynecological Society in which he described a new method of removing the uterus for fibroid tumors. His experience with the method is based upon a series of ten consecutive cases, all of which, except the last (which died of shock) made a quick recovery with no important incidents during convalescence. The method must not be confounded with those of Goffe and Dudley, although in certain respects resembling their devices. The Baer operation consists of passing a single silk ligature through the broad ligament near the cervix, and then transfixing the ligament near its outer surface and tying. In order to prevent reflux from the uterus, a stout pedicle forceps is made to grasp the broad ligament below the tube and ovary, and then the ligament is severed just below the forceps, the incision being carried close to the edge of the tumor. A second ligature may be applied to the broad ligament lower down, if deemed necessary, and the process of ligation and cutting be repeated on the opposite side. The knife is then carried lightly around the tumor an inch or two

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above the peritoneal reflexion of the bladder in front and behind, and the peritoneum stripped off with a scalpel handle for the purpose of making peritoneal flaps. The next step is the ligation of the uterine arteries. This most important matter is accomplished by passing the ligature through the broad ligament, outside of, but close to, the cervix, avoiding the ureters. The uterus is then amputated, and the stump (trimmed and made as small as possible) immediately recedes upon being released, and is buried out of sight by the peritoneal flaps which cover it like elastic bands. The peritoneal flaps are united by Lembert sutures, if necessary. The cervix is thus allowed to resume its natural position and is devoid of a single ligature or suture in its tissues. Nothing whatever is done to the cervical canal. Nor has the author found it necessary to use the temporary elastic ligature about the cervix. The author believes his method of operating comes as near being technically correct as possible, for the following reasons:

(1) It secures against hemorrhage, because the blood vessels are ligated outside the muscular tissue of the cervix; and against sloughing, because these tissues are entirely free from a constricting ligature.

(2) It removes all of the supravaginal tissue, without opening the vagina, thus allowing the cervix to remain attached and *in situ*, to maintain its position as the keystone of the arch, and preserve the strength and anatomical shape of the lower part of the abdominal cavity.

(3) The raw end of the stump is in contact with the raw surfaces of the surrounding structures, deep in the pelvis and covered by the raw edges of the peritoneal flaps which press firmly upon these tissues and immediate union doubtless occurs.

(4) The danger of contamination from sloughing pedicle, open vagina or drainage tube does not exist.

(5) The anatomical relations of the parts are not so disturbed as in other operations and the dangers of hernia, fistula and other unpleasant sequelæ are absent.

The Treatment of Functional Dysmenorrhea.

James Oliver (*Edinburgh Medical Journal*, July 1892) recommends that the food be plain, gentle exercise taken and an attempt made to establish the custom of having a morning evacuation of the bowels. In cases where there are pain and nausea, no matter whether the disturbance is central or in the organs themselves, the writer finds good results from a large dose of bromide given at bedtime for a week midway between the periods, and five grains of antipyrine every hour, beginning as soon as there is any indication of the approach of menstruation, and continued, if necessary, until about half a dozen doses are taken. When the discharge is scanty, and especially when the pain seems to be due to vascular spasm, the patient should take a hot bath each night for a week preceding the period, and afterwards a mixture of the three bromides, the dose varying from ten to twenty grains of each. If the pains appear to be dependent upon gastro-intestinal disturbance, a mixture containing either chloride or hypophosphite of calcium should be administered during the intermenstrual epoch.

Uremia Caused by Epithelioma of the Cervix Invading the Ureters.

An interesting case was reported to the Clinical Society of Louisville by Dr. J. A. Ouchterlony, in which there was an epithelioma of the cervix uteri, which involved, at the time of the original examination, so much of the anterior vaginal wall and surrounding tissues that operative measures were deemed inappropriate. Astringent washes and other forms of palliative treatment were advised for a few weeks, when the patient suddenly became unable to void her urine. Diuretics were administered without effect. Catheterization failed to remove more than a small quantity of sanguineous, milky fluid. During the course of two weeks no urine was passed, and coincident with this suppression there developed in the right flank a soft fluctuating tumor in the course of the ureter. Examination of the bladder found its posterior walls involved in the malignant process, which had encroached upon the orifice of the ureters and occluded them. Uremic convulsions occurred and patient died in about two weeks after the suppression.

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Uterine Osmosis.

Walter S. Walls (*Medical News*, October 22, 1892), calls attention to osmosis and capillarity as most efficient aids in the treatment, and as preventives, by early treatment, of some of the diseases peculiar to women, that once developed are incurable by any device of surgery. Absorption is accomplished chiefly through the lymphatic system, and the fact that the lymphatics are distributed so exuberantly and anastomose so freely in and about the uterus and ovaries, makes these regions very favorable for the absorption of medicine placed in contact with them. Branches of lymphatics from the cervix, together with the branches from the vagina, coalesce to form trunks that enter the internal iliac and sacral glands, and branches from the uterus, ovaries, tubes and rectum converge and enter the lumbar glands, thus forming a circuit which will be influenced by osmosis.

"Endosmosis of medicated fluids at the uterine and vaginal point of these congeries or anastomoses of lymphatics will influence the entire circle; and simultaneous erosmosis will, in its turn, effect drainage and depletion, not only of those parts to which the medicinal application is immediately in contact, but of others adjoining them." The capillary system of blood vessels play a similar part in the work of absorption of fluids placed in contact with them.

The mucous membrane of the vagina, of the cervix, of the cavity of the uterus and of the Fallopian tubes may be termed a human endosmometer, and it holds the same relation as to mechanism as the dead membrane occupies in the artificial endosmometer, except that, being living membrane, composed of numberless capillary orifices, absorbing tubes and pores, it is more active than the latter.

It is only necessary, in order to institute osmotic operations upon the uterus, to complete the relations suitable for maintaining medicated fluids in direct apposition with the mucous membrane of the organ by means of a material composed of soft, porous, clustered tubes in which capillary action may take place. For this purpose the fine Syrian sponge has been found to be the most satisfactory material. It must be prepared for use by being made surgically clean, bleached and kept in antiseptic fluid until required.

By saturating such a sponge with a fluid of low density and placing it in contact with the mucous surfaces of the vagina and uterus, conditions favorable to osmotic action are established. Experience has amply demonstrated that, with these relations maintained, endosmosis of an aqueous medicated fluid in the sponge occurs; this being of lower density passes through the pores of the mucous membrane to be absorbed by the lymphatic and capillary vessels of the organs. At the same time, exosmosis of the heavier fluid-deposits incident to congestion or inflammation takes place, the excretions passing out into the sponge. While the osmotic action which can be obtained by this arrangement is, for many cases, quite sufficient, it often happens that a more direct action is desired to be made within the recesses of the uterus to affect more deeply-seated engorgements of the pelvic organs. In order to accomplish this the author has used a small spiral-wire tube covered with a woven texture, and containing within its calibre capillary filaments constituting a wick, each extremity projecting beyond the tube half-an-inch. This tube is pushed within the uterine cavity beyond the os internum, with the capillary filaments resting upon the endometrium, while the saturated sponge being placed in the vagina holds the lower extremity of the filaments, and capillarity and endosmosis convey the fluid from the sponge to be diffused upon and absorbed by the endometrium. As the spiral-wire tube is made just long enough to fit in the uterine canal, the ends of the wick lie in contact with the fundus of the uterus, and the orifices to the Fallopian tubes and the lower portion of the wick is embedded in the sponge, making the treatment more diffused and thorough than by simply employing the sponge alone. This plan of medication is said to be superior to injections in that it causes no shock. The writer states that it has been of "common occurrence in cases of chronic congestion and inflammation of the uterus and its adnexa, upon the removal of this apparatus, after about twenty-four hours, to find it saturated with puriform, serous or mixed excretions, and this too when the most careful examination of all of its surfaces visible by the Sims' method, failed to find an ulcer or other solution of continuity to account for the puriform discharge."

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There is no difficulty in introducing the tube, as the conditions which call for its use make the uterine canal patulous and easy of entrance. The tube acts as a stem pessary and aids reposition of a flexed uterus, while the sponge also acts as a soft support. The sponge to be used as a support must be first wrung out of the medicated fluid as nearly dry as possible and then placed in situ where it can be saturated by a long-nozzled syringe. The author feels justified in stating that the osmotic plan of treatment is indicated in all stages of congestion, engorgement or inflammation of the vagina, uterus, tubes, ovaries, peritoneum, rectum or other tissues whose lymphatic and capillary vessels anastomose with those of the vagina and uterus.

Acute and chronic ovaritis, puerperal septicemia and the engorgements incident to subinvolution are conditions which are influenced more favorably by osmosis than by any other form of treatment. In cases of puerperal endometritis and septicemia, after curetting and douching, apply the sponge saturated with an anodyne and an antiseptic to the os and cervix. Osmosis of the uterus will be effected, causing the lochial flow to be resumed, its fetor to disappear by the antisepsis and the temperature and pulse to become reduced as the medication and drainage of the parts proceed. In cases of this nature it is necessary to change the sponge night and morning. It must be cleaned by washing in water (containing spirit of ammonia) carbolized, re-medicated with an aqueous solution of carbolic acids morphine and glycerine, or other suitable mixture as the physician may elect, and replaced in direct contact with the cervix to maintain osmosis.

The mixture may be injected between times for the purpose of saturating the sponge and keeping the parts clean. The post-mortem examinations of Championnier, Leopold and others show that in puerperal inflammation the lymphatics are commonly filled with pus; and it has been stated that there are many cases of chronic inflammation of the female pelvic organs confined almost to the lymphatics themselves. Hence the importance of promptly unloading these vessels so as to arrest local disorganization and neutralize blood-poisoning.

It is quite possible that certain morbid growths have their origin in some one or more of the involved lymphatic or capillary tubes that become obstructed during protracted congestion, and, being unable to float away the clog, disorganization follows. This may be a explanation of the frequency of morbid growths in the uterus and ovaries, considering the large number of women who are subject to repeated congestions of these organs from puberty to the menopause, and the prompt and thorough employment of the osmotic plan of treatment will lessen the number of cases applying for removal of tumors and cancerous growths by surgical measures.

Calcareous Degeneration of a Fibroid in the Broad Ligament.

W. H. Wathen (*Medical and Surgical Reporter*, November 5, 1892), recently removed a fibroid tumor, the size of a hen's egg, which was located in the folds of the broad ligament and had no connection with the ovary, tube or uterus. The tumor had undergone calcareous degeneration. A few similar cases have been recorded, but they are very rare. The symptoms of which this patient complained were referred entirely to the rectum, and she had passed from one doctor to another before the true cause of her trouble was discovered. She complained of almost constant rectal pain, aggravated during defecation. Negative results had followed examination and treatment of the rectum, but there was no difficulty in detecting, by vaginal examination, a movable, very hard tumor in Douglas' pouch. Since its removal the patient has been relieved of her distressing symptoms.

Gynecological Impressions.

W. B. Sprague (*American Gynecological Journal*, September, 1892), after having visited the clinics of Great Britain, France and Germany, concludes that it is not at all necessary for the American student to go abroad to study gynecology. He states that gynecologists in America are in advance of their brethren across the water. In London there are many obstetricians, but few gynecologists. The author was impressed with the

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lack of antiseptic precautions while in London, but was pleased to note the spirit of fairness and candor with which different methods of treatment were discussed and investigated. Throughout France, but especially in Paris, the influence of Apostoli was everywhere apparent. The use of electricity in gynecological practice is very popular there, many physicians advertising this form of treatment as a special inducement to patients. Speaking of Apostoli, the writer says that no one can see him at work without being convinced of his thoroughness and earnestness. Every case presented is subjected to a most careful examination before any treatment is advised, and the most patient and painstaking measures are pursued in treatment after a diagnosis is made. The gynecology of Berlin is gynecological surgery. "If there is no possible excuse for a laparotomy, a vaginal hysterectomy, a colporrhaphy, a trachelorrhaphy, a perineorrhaphy, or a Hegar's combination of orrhaphies, certainly the womb must be thoroughly scraped with a sharp curette, regardless of a perimetritis or salpingitis." Electricity has almost no advocates in Berlin. The writer witnessed a number of operations by Martin, of whom he says: "He is thoroughly aseptic in his methods." Not only the operator and his assistants, but the patient and their surroundings must be as clean as it is possible to make them. Flushing the abdomen was not done by Martin in a number of cases seen by the writer, nor was a drainage tube used. A case is referred to in which Martin operated for ectopic gestation, rupture having occurred two days previously. A large mass of dark blood-clots was wiped out of the abdomen with a sponge, and the incision was sewed up tightly with excellent result. Catgut is the suture for almost everything at present in Berlin.

PATHOLOGY.

UNDER THE CHARGE OF
JOHN GUITÉRAS, M.D.,
ASSISTED BY
JOSEPH McFARLAND, M.D.

A New View of Leucocythemia.

Robert Muir, "Observations on Leucocythemia," in the *Journal of Pathology and Bacteriology*, Vol. I, No. 2, October, 1892, interestingly describes a careful study of the disease. In describing his technique a new method of "fixing" cover-glass preparations is given, in which the spread film is dropped into a saturated solution of bichloride of mercury before drying. After fixing in this way, it is stained and handled like a section of tissue. Another method employed was to drop blood into strong Flemming's solution, which both hardens and fixes the cells at once. Afterward, the drops are imbedded and cut in paraffine. For staining, saffranin and Ehrlich's hematoxylon were found best.

His work is not yet complete, but the conclusions thus far reached are interesting.

"I believe that the changes found in leucocythemia cannot be explained on any other theory than that of an excessive and indefinite proliferation of a certain kind of cell, in its nature resembling that seen in the growth of many tumors. Practically all recent observers are agreed that the spleen of an adult mammal does not perform the functions of transforming white corpuscles into red, and also, in fact, that leucocytes found in normal blood do not become red corpuscles. Nor do I believe from the results of numerous observations that those cells of bone marrow, which are similar in structure to the large uni-nucleated corpuscles of leucocythemic blood, produce the nucleated antecedents of the red blood corpuscles. Regarding this, however, there is greater difference of opinion, and one cannot satisfactorily discuss the question without giving a minute account of the characters of the various cells found in the marrow and their relationships to one another. Even on the

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supposition that these marrow cells do form nucleated red corpuscles, the essence of the disease would rather be an excessive proliferation of the former, the failure to become transformed being a result of the rapid division. The theory of Löwit that the cause of the disease is a failure of the uninucleated leucocytes to become multinucleated with a consequent accumulation in the blood, is open to still greater objections. The presence of mitotic figures in the blood, the characters of the cells present, and especially in some cases of the great actual increase of the multinucleated forms, are quite unexplained by such a theory."

Ameba in an Abscess of the Jaw.

Simon Flexner, in the *Johns Hopkins Bulletin* for September, 1892, No. 25, found in offensive smelling pus of fecal odor, removed from an abscess of the jaw, a large number of actively ameboid cells, whose large size and unusual activity soon convinced him that they were *ameba*. The abscess was evacuated and packed with iodoform gauze. When subsequently examined, the pus adhering to the gauze was found to contain ameba in whom heat produced no activity and which were hence supposed to be dead. Still later, in some creamy pus attached to a piece of rubber tissue dead ameba were found. After treatment the case progressed nicely.

The Pathology of Sudamina and Miliaria.

Joseph Coats, in the *Journal of Pathology and Bacteriology* for October, 1892, says: My conception is that an inflammation centering in the sudoriparous glands and ducts, induces an emigration of leucocytes into these, and that the terminal twisted part of the duct being unable to give passage to these bodies, an obstruction occurs with the resulting accumulation in the duct behind. At first the exudation has few leucocytes, but the twisted part of the duct, although capable of giving passage to the fluid sweat, will be readily obstructed by solid bodies such as these cells, even though few in number. The fluid accumulating behind will, at first, be clear and translucent—a serum largely diluted with sweat. Afterward it becomes rich in leucocytes, till the sudamen is little less than a small abscess. But again, it is not a single dilatation of the duct which occurs. The wall of the duct as it passes through the epidermis has no special epithelial lining apart from the malpigian layer. As the fluid increases, the duct becomes distended and the epithelial cells stretched and dislocated. By this process an irregular cavity is found which tends to assume a globular form.

It is to be noted that the sweat glands are evidently the centres of irritation. I can only suppose that some soluble poison extending outwards from the duct, reaches the vessels, sets going the emigration of leucocytes, and that these latter tend to pass toward the parts where the poison is most concentrated.

I think we may infer in all cases where sudamina occurs in connection with acute fevers, that the poison is present in the sweat, and that it is in process of elimination by means of the sweat. Whether it be merely the dissolved products which are thus eliminated, or whether microbes, which we may take for granted are the essential agents of infection are also present, we cannot say. Specimens were examined, stained by Gram's method, and although in abscess-like cavities minute diplococci were found, he is not ready to ascribe them as the cause.

Can Cholera, Typhoid and Anthrax be Transmitted Through Beer?

Weyl, in the *Deutsche medicinische Wochenschrift*, No. 37, found that cholera bacilli cannot retain their vitality in beer longer than twenty-four hours, because of the alcohol which it contains, hence beer which has been kept for that length of time is free from infectious material. A source of infection, however, might be the water in which the glasses are washed, hence precautions should be taken that only sterile—*i. e.*, boiled or distilled water should be used for that purpose. Although typhoid and anthrax are included in the title, the work does not seem to comprehend them.

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CORRESPONDENCE.

A REPORT ON THE ORIGIN AND PROGRESS OF THE AMERICAN-BERLIN MEDICAL SOCIETY.

Editors of the UNIVERSITY MEDICAL MAGAZINE:

GENTLEMEN: The constantly increasing number of students that yearly seek the advantages of a course of study in Berlin, is my excuse for jotting down these few details regarding this Society, knowing that this information will be of immediate and material importance to them.

The meeting for organization took place in February, 1891, with an attendance of twelve, and at the next meeting there were about thirty-five American students present, and an organization was at once effected by appointing a president, vice-president, secretary, treasurer and various committees with special duties. At the next meeting there was an attendance of about fifty, and several very interesting and valuable papers were read, some of which were entirely original. At the second regular meeting of the Society there was an attendance of about sixty, and another profitable evening was spent in the discussion of papers that were presented to the Society. Many of these papers were accompanied by microscopical preparations, and these demonstrations were greatly appreciated by all present. At the next meeting the writer resigned the presidency in favor of Dr. W. D. Miller, of Berlin, who has since held the chair, and the good work of the Society can be best understood by the following resumé of the incidents that have happened since April, 1891.

During the first full year there were twenty-three meetings held at intervals of two weeks, with the exception of the vacation months of August and September. Thirty-five papers were read by the members, and there were three debates, or discussions, nineteen microscopical demonstrations and five patients were presented to the Society. Two magic lantern demonstrations were given, and they were of unusual interest, as was also the presentation of two patients treated for tuberculosis, one case of myxedema, a demonstration of hypnotism and a demonstration of the germ of influenza.

This Medical Society does not neglect the social feature, as will be seen by the following record: On July 4 a stag-dinner was given and thirteen members were present, and on July 23 a dinner was tendered the Society by the president; on July 30 the Society was presented with an onyx inkstand; on November 26 a Thanksgiving ball was given by the Society, and there were present 250 guests, many of whom were well known in German society as well as to the American colony, and there were present most of the well-known scientific men of Berlin. On February 22, 1892, Washington's Birthday was celebrated, in which seventy-five participated.

Dr. Edward Bush, Director of the Dental Institute of Berlin, was made an honorary member.

The present active membership number thirty-eight, and during the year more than ninety names have been enrolled as members. The second year

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was most auspicious, and active interest was shown in the Society. The average attendance at each meeting varied from twenty-five to thirty. The thanks of the Society are especially due to the present president, Dr. W. D. Miller, and to its former and original secretary, Dr. F. A. Webber, now of Milwaukee.

This Society has increased in strength so that now it occupies an advanced position in Berlin, and all questions of great interest to the large American colony there, are usually referred to it before action is taken.

In addition to the bi-monthly meetings, the members meet at regular periods for social entertainment. Further, this Society enables all the members to act in a body, so that special courses can be arranged with the *privat docents* and special rates obtained from instrument-makers and booksellers. A correct list composed of good lodgings is in charge of a special committee, and a special committee of men interested in each of the different specialties as well as in the broad domain of medicine and surgery, is appointed to collect information regarding various public and private courses of instruction in medicine, surgery and the specialties.

The advantages of this Society are so obvious that every American who proposes to study medicine in Berlin should make application to its president, Dr. W. D. Miller, and within twenty-four hours he will receive accurate and precise information regarding all the private and public courses that are given, and can arrange special courses among the members; he will be able to secure a special discount on all books and instruments which he may purchase, and at the same time he will be able to obtain a list of lodgings and restaurants where he may go and feel perfectly comfortable. This information, which he acquires so quickly, would take, in the ordinary course of events, not less than two or three weeks, and, with a strong probability that he would waste much more time, not to mention the advantage of meeting and knowing all of his countrymen that are in Berlin at the same time.

JUDSON DALAND, M.D.,

Instructor in Clinical Medicine and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania; Assistant Visiting Physician to the University Hospital; Physician to the Rush Hospital for Consumptives.

THE CURATIVE EFFECT OF OPERATIONS PER SE.

Editors of the UNIVERSITY MEDICAL MAGAZINE:

GENTLEMEN: The following letter may be of interest to your readers.

Sincerely yours,

J. WILLIAM WHITE.

MY DEAR DR. WHITE: Circumstances over which I had no control prevented me from replying to your note before this. My paper may be too late to be of use, but, if not so, it is at your service.

Early in the summer of 1850 a woman, aged about 40 years, was admitted into the Pennsylvania Hospital. There was a well-marked murmur at the base of the heart and heard along the course of the aorta. There was dyspnœa on exertion with other symptoms of cardiac disease.

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The case was diagnosticated by the attending physician, as "*valvular disease of the heart*," and she was admitted into the medical ward, where she remained for some weeks. During her residence here she became the subject of strangulated hernia, and, all efforts at reduction failing, was transferred to the surgical ward, where she was operated on by the surgeon then on duty. The attending physician, by whom the diagnosis of valvular disease was made, was a most careful diagnostician, and the attending surgeon, Dr. Edward Peace, was one whose patients "did well," no matter what happened to them during the operation. "Peace's luck" was a proverb with all his residents.

In the course of the operation the intestine was accidentally punctured. A ligature was applied, the patient put to bed, and recovered without a bad symptom.

Strange to say, with the recovery from the operation there was a coincident improvement in the disease of the heart. The valvular (?) murmur became less and less distinct, and a few weeks later the patient was discharged as "cured."

It is the only case which has come under my observation where valvular disease of the heart has been successfully treated by the operation for strangulated hernia with perforation of the intestine! My fellow-residents at the hospital were Dr. R. A. F. Penrose, late of the University of Pennsylvania, and Dr. William Hunt, now Senior Surgeon of the Hospital.

In talking a few days ago with Dr. Hunt about this case, I found he remembered it at once.

Very sincerely yours,

JAMES J. LEVICK.

1200 Arch Street, Philadelphia, October 27, 1892.

BONE DECALCIFICATION.

Editors of the UNIVERSITY MEDICAL MAGAZINE:

DEAR SIRS: By an oversight upon my part the method of bone decalcification and digestion, in the September issue of the magazine was credited to Dr. Roberts instead of Dr. Morris. Could you kindly make a correction of the same.

Respectfully,

FRANK A. MORRISON.

Indianapolis, October 28, 1892.

FEVER IN LATE SYPHILIS.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE.

GENTLEMEN:—I regret to have to call your attention to the omission of the temperature chart from my paper in the October issue of the MAGAZINE. As the chief lesson of the paper was dependent upon the chart, I take the liberty of asking you to publish it in your next issue; and to call attention to the fact that while the temperature change was not of special significance, the

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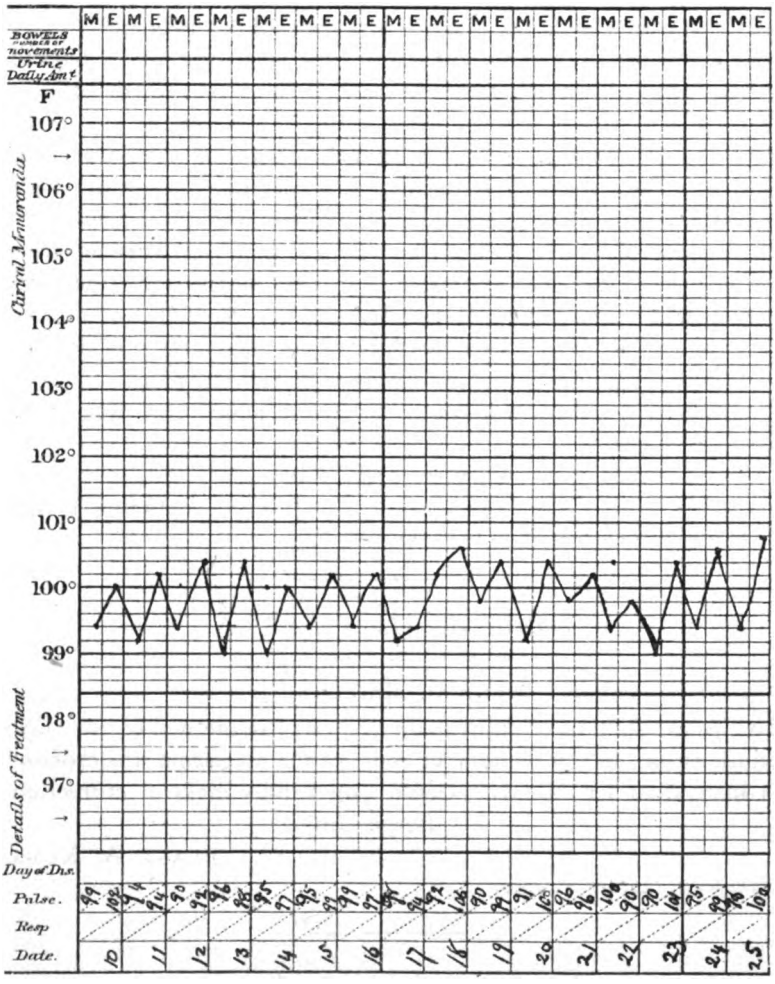
fact of there being an elevation of temperature without other definable cause associated with an obscure tumor, was an indication of syphilis.

I am, sirs, very truly yours,

PHILADELPHIA, October 24, 1892. J. H. MUSSER.

[Owing to a misunderstanding of Dr. Musser's former letter, the temperature chart was omitted. We hasten to correct the omission at this late date. The notes relating to the case will be found on page 7 of the present volume.—EDS.].



IN RE GUM LANCING.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

SIRS: It is, perhaps, late in the day to answer the letter addressed to you by Dr. H. C. Wood, on the above subject (Vol. IV., July, 1892, p. 738), but that letter has just been brought to my notice. If there is an excuse needed for my reply, it will be found, I hope, in the nature of the subject and the

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great importance attached to it by many in the profession, as well as many more outside of it. Where Dr. Wood says he "is absolutely sure that he has seen 'convulsions, sick stomach, great restlessness, fever and various other functional disturbances in young children, immediately cured by the use of the gum lancet, after the failure of various other well directed measures for relief;" I can only say that such has not been my good fortune. While I have lanced or scarified the gums of only one child, I have seen it done so often that I am bold enough to claim that my experience with this operation has been sufficiently extensive to warrant me in drawing conclusions.

In the little book on "The Diseases of the Mouth," some of the experiences have been narrated, but by far the greatest number has not ever been referred to. It is not necessary to state, as has been done so often, that nearly every disease of infancy has been ascribed to teething, and, as a logical consequence the lancet has been recommended in all of these diseases.

As our knowledge has grown more exact, the indications and operations have become more restricted, so that now we find the operation limited to "various other functional disturbances," principally, and the method reduced to "the dividing the dense tissue that binds down the teeth."

The history of dentition and its diseases is curiously interesting, and is referred to in the book mentioned above; the history of "Gum lancing or scarification" (Marshall Hall) is almost equally so, first, it was to give the tooth a chance to come through the gums, then the tooth had to be separated from its lateral surroundings and now, the old cry that it should be thorough and strike at the root of the evil. I take it, the quoting of authorities will be of little service; English speaking physicians will be found in favor of gum lancing or scarifying—with most notable exceptions—French and German physicians will, with very few exceptions, be found as opposing the operation.

Theoretically, the subject has been gone over and over again; with the result that is found in these two letters; absolute diversity of opinion. The backward pressure of the tooth is no new thing; the tooth has been supposed to press in all directions, toward the mouth, laterally and backward. This pressure has never been measured and, in my opinion, is evolved from the inner consciousness of the authors.

It is interesting to note, in this connection, that the most recent writer on this subject (Kassowitz) claims that there is only a forward pressure if we can talk of pressure at all, and that the tooth, with all its belongings, constantly changes its place in the jaws. One thing we have a right to ask for is the substantiation of such as the following that "when the sensitive pulp composed of connective tissue, blood vessels, and nerves, is in a condition of irritation because of the morbid activity of the process of dentition—augmented vascular and nervous action—there may be produced a hyperæmia sufficient," etc. It is denied that the sensitive pulp is in a condition of irritation; that there is a morbid activity in dentition, that there is augmented vascular and nervous action, and that there is hyperæmia sufficient or insufficient. All, with the exception of augmented nervous action, could be detected upon post-mortem examination. Has any one found them? If so, why have their

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results never been published? Now, if all these things do not occur, as many believe, what is the use of "dividing the dense tissue" that binds down the teeth, or, even going further, as has been suggested, and extracting these teeth?

Compare, for a moment, these statements and their deductions with those we are accustomed to receiving from Dr. Wood; when he tells us of the action of any remedy he has made his experiments, has recorded them, by means of exact instruments, and when he draws conclusions, they are not from hypotheses, but from facts. Here, theoretically even, there is nothing but assumption and, willingly, "whatever the theory may be," I turn to the practice. A case of "seemingly incurable epilepsy in an adult permanently cured by the removal of a persistent milk or first dentition tooth," manifestly has no bearing upon our subject, more especially so as the gum was not lanced.

What I would ask for, in a final settlement of the question of *dentitio difficilis* is an extended series of observations, first in regard to the behavior of healthy children during dentition; secondly, records of unhealthy children during this same period and lastly, the action of remedies employed. The first has been done, to a certain extent, by Dehio, Woronichin, Stage, Kassowitz and myself (unpublished except as to results, in my book), with some differences in opinion. However this may be, the question is by no means clearly answered for reasons that are, more or less inherent to the subject, and because the number of investigators is not sufficiently great. The inherent reasons can be summed up by stating that some of the observers have not followed the same rules that my critic would follow if he was making a physiological experiment.

The second series of observations are almost wanting altogether—it is unnecessary to say how very important it would be to have such observations made. As usual, we find the fullest literature on the therapy of dentition and, it is unnecessary to recall the fact that, in this line much greater mistakes were made by the greatest men of their times than, some of us believe the adherents of gum lancing are now making. The results of gum lancing or scarification are either *post hoc ergo propter* or due to the loss of blood! It is almost impossible to judge the effects of gum lancing for it is always combined with the contemporaneous administration of some remedy, commonly more potent, and happily, most likely to strike at the cause of the trouble; the alimentary canal. Let any one, to-day, treat infantile convulsions, for instance, by gum lancing alone, let him publish his results and see what a scientific spectacle there would be. Take any one of the *symptoms* ascribed to teething by Dr. Wood, on the other hand, exclude teething as a possible cause, find the cause somewhere else and remove it, as can be done without lancing the gums, and what other course of reasoning is left, but the one I here indicate?

Very respectfully,

F. FORCHEIMER.

Cincinnati, October 24, 1892.

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UNIVERSITY
MEDICAL MAGAZINE

JANUARY, 1893.

A CLINICAL STUDY OF ELEVEN CASES OF ASIATIC CHOLERA TREATED BY HYPODERMOCLYSIS AND ENTEROCLYSIS.[1]

By Judson Daland, M.D.

Instructor in Clinical Medicine and Lecturer on Physical Diagnosis and Symptomatology in the University of Pennsylvania; Assistant Visiting Physician to the University Hospital; Physician to the Philadelphia Hospital; Physician to the Rush Hospital for Consumptives.

This evening I shall give a short description of the clinical history and treatment of eleven cases of Asiatic cholera that I had the opportunity of observing at the Swinburne Island Hospital in New York Bay in September, 1892.

The first case was typical of a group that may be called mild cases, and occurred in a Russian, aged 16 years, admitted to the ward September 9 from the steamship Bohemia. His temperature was 99.2°F., pulse 94, and respirations 24. Three more observations, which were continued until midnight, gave the same results. The first matter vomited after admission was composed of a greenish liquid mixed with mucus. The diarrheal discharges were whitish in color and rice-water like in character. The pulse was of fair volume; he complained of abdominal pain of moderate severity. He slept well and passed a normal quantity of urine. It is worthy of note that at no time was the temperature below normal. After remaining in the cholera ward three days he was discharged fully convalescent. The spirillum of cholera was detected in the discharges.

His treatment was as follows: Upon admission he was given ten grains of calomel, and afterward he received one grain every hour for six hours. He was also given two quarts of a one per cent. solution of tannic acid at a temperature of 104° F., by enema, every three hours. At no time was it necessary to resort to subcutaneous injections of the six-tenths per cent. solution of sodium chloride. He was also given

[1] Read before the College of Physicians, November 2, 1892.

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twenty minims of whiskey hypodermatically, and occasionally one-eighth grain of morphine.

The second case well illustrates an ordinary attack of Asiatic cholera. A Russian, aged 7 years, was admitted from the steamship Bohemia, September 26, at 8 P.M., with a temperature of 96.2° F., pulse 106, respirations 22, and the surface of the body extremely cold and cyanotic. The face was pinched, especially in the nasal region, it was markedly cyanotic, and the eyes were deeply sunken and surrounded by dark circles. The pulse was feeble and small and was counted with difficulty. She at once received a warm plunge bath, and her stomach was then washed out with one pint of a one per cent. solution of tannic acid at the temperature of the body. Shortly afterward she vomited twenty-three ounces of fluid. She remained in about the same condition during the night, but the passage of a moderate amount of urine encouraged us to hope for a favorable issue. On September 27 her pulse was 104, her temperature 97.4° F., and her respirations 18 to the minute. The cyanosis persisted, there was no vomiting, but she had frequent copious discharges from the bowels, composed chiefly of the tannic acid solution which had been injected per anum. Later in the day improvement began, the temperature varied between 100.2° and 100.4° F.; a large semi-solid stool was passed. She slept moderately well during the night, but complained greatly of thirst. A sufficient quantity of urine was excreted, and the liquid from the bowels was composed chiefly of the tannic acid solution that had been given by injection. She became very restless, but the following day was much brighter and began to notice her surroundings. The dejecta changed in character becoming greenish in color and somewhat frothy. On September 29 she slept well; her bowels were moved only after giving the intestinal injection of tannic acid solution. In the afternoon her improvement was so marked that it was decided to suspend these injections. Her temperature varied from 97.8° to 99.4°, the pulse between 96 and 120, and the respirations from 22 to 24. On September 30 she was able to take nourishment and stimulants by the mouth, but the stools continued brownish and thin, and when an attempt was made to administer beef-tea or any food by the mouth, vomiting occurred. The cyanosis disappeared, and it was then observed that she was shrunken and emaciated. She continued to improve, and on the fourth day after admission was carried into the open air, where she received a sun-bath for two hours.

The following summary of the treatment may not be without interest. Upon admission she received a hot plunge bath. The first enteroclysis or intestinal injection was retained for three minutes, and afterward these injections were repeated every two hours. A subcu-

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taneous injection of one pint of a six-tenths per cent. solution of sodium chloride was given the day after admission. At first whiskey was administered by the mouth, but afterward ten minims were given hypodermatically every four hours. The total duration of the patient's illness was five days, and her convalescence was extremely rapid and uninterrupted.

The third case presented the typical symptoms of Asiatic cholera, and death occurred forty-one hours after admission to the hospital. The patient was a Russian boy, aged two years, who was admitted to the ward from the steamship Bohemia at 2 P.M. He complained of pain, and vomited and purged freely. His face had the bluish and shrunken appearance that is so characteristic of this disease. The upper and lower extremities, as well as the face, were cold and cyanotic. The pulse was very weak, about 100 per minute, and the respirations were shallow, averaging forty-two per minute. The temperature was 98° F. and soon descended to 97.4° F. He made no complaint of pain nor of muscular cramps. At first everything taken by the mouth was vomited, but soon this symptom subsided. The bowels moved frequently, the discharges were copious in quantity, whitish, and contained a large quantity of epithelium, giving them a rice-water like appearance. The patient soon became apathetic, and during the night continued to purge and vomit, and during the day the cyanosis became extreme, especially in the face and extremities. The remainder of the skin surface was whitish in color, and when a fold was pinched between the thumb and forefinger it remained elevated for some time, and then gradually resumed its former condition. The pulse became weaker, small, and increased in frequency from 90 to 100; the respirations rapid and shallow; and the temperature varied from 98.8° to 99.6° F. There was no vomiting except that which was excited by attempts to administer food or remedies. During the night he had two copious choleraic discharges from the intestine. He continued in about the same condition until his death.

The spirillum of cholera was obtained from the early intestinal discharges. The autopsy was performed six hours after death. The cadaver presented the same general appearance as has been already described. *All* the tissues and *all* the organs of the body were remarkable for their extreme dryness. Both pleuræ showed extensive old adhesions, particularly on the left side. The lungs, liver, spleen and peritoneum were normal, but *dry*. The kidneys showed acute parenchymatous nephritis. The entire subcutaneous tissue was dry and dark, and the skin when pinched remained elevated, the same as during life. A rectal tube was introduced for a distance of ten inches, to which was attached an ordinary fountain syringe, the reservoir of

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which was placed at an elevation of five feet, and contained two pints of water, which was passed through the ileo-cecal orifice, filling the small intestine and stomach.

Upon admission he was placed in a plunge bath having a temperature of 104° F., and calomel in one grain doses was given every hour for three doses. Two pints of a hot one per cent. solution of tannic acid was injected into the intestine every two hours, and also a subcutaneous injection of half a pint of a hot six-tenths per cent. solution of sodium chloride, containing one per cent. of brandy. Every hour ℥v of whiskey were given hypodermatically, and at night oxygen was given by inhalation. All attempts to administer food or remedies excited vomiting.

The fourth case illustrates how rapidly death may occur in cholera. The patient was a Russian emigrant, aged eight years, admitted from the steamship Bohemia at 6 P.M. on September 26. She told us that in the morning, at 2 o'clock, vomiting and purging began, and between the hours of 2 A.M. and 6 P.M. she had three large rice-water discharges from the bowels and two similar discharges from the stomach. Upon admission she presented the characteristic facies of cholera. The orbits were deeply discolored, and there was a suffused reddish-purple blush over the arms, nose, legs and feet. This cyanosis was especially marked on the left side of the neck, arm and leg. This was due to the position assumed while on board the tug boat, which was used in conveying her from the steamship to the hospital. At first she was able to say a few words, but soon became unconscious. Her respirations were very shallow, numbering thirty-five to the minute. Her axillary temperature was 96.6° F. Soon after admission she vomited a moderate quantity of light-brownish fluid, and at 8.15 P.M. she again vomited twenty-eight ounces of a liquid having the same character. At 9.15 P.M. she discharged a large quantity of rice-water liquid per rectum, and she died at 10.15 P.M., four hours and fifteen minutes after admission, or twenty hours from the appearance of the first symptom of the disease.

Upon admission she received a hot plunge bath, and fifteen minutes thereafter her stomach was washed out with one pint of solution of boric acid at the temperature of the body. At 8.45 P.M. she received an enteroclysis of two pints of one per cent. solution of tannic acid at a temperature of 104° F., which was rejected. At 9 P.M. oxygen was used freely, and at 10 P.M. a subcutaneous injection of two pints of distilled water, containing six-tenths per cent. of sodium chloride and one per cent. of whiskey was administered. From time to time whiskey was given by the mouth. Oxygen was continued until her death.

The autopsy was performed eighteen hours after death. Rigor

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mortis was extreme, the entire skin surface was dark-bluish in color, as were also the matrices of the nails. The body was considerably shrunken and emaciated. There was but little subcutaneous fat. Both pleuræ were free from adhesions. The lungs were collapsed, dark in color, but otherwise normal. The thymus gland was unusually large, measuring three by two inches. The right ventricles were contracted, and each contained a moderate sized clot. The ventricles and auricles and cavæ were over-distended with blood, coal-black in color, and tar-like in consistency. The small intestine showed exfoliated epithelium and injection of the blood-vessels. The heart muscle and pericardial sac were normal. The liver was moderately enlarged and the right lobe was unusually flattened at its base, and its entire surface was mottled with irregular areas of a whitish, wax-like material passing into the substance of the liver. The left lobe of the liver was infiltrated more uniformly with the same material, but its consistency was normal. The gall-bladder was over-distended with a thick, dark-green bile, containing mucus. The kidneys were cyanotic, but otherwise normal. The spleen was normal in size, and its pulp was black in color and glutinous. The bladder contained about two drachms of pale urine. The gastric and intestinal contents were typical in appearance, and contained the spirillum of cholera. There was complete suppression of urine. The skin and subcutaneous tissues were so dry that when pinched the fold remained for several minutes.

I beg your indulgence while I narrate the history of cases V the most interesting of all observed, and where we were fortunately able to note minutely every change that took place from the beginning to the end. This patient exhibited nearly all the symptoms of a typical malignant case of Asiatic cholera, illustrating also, in an equally striking manner, the results obtained by treatment.

This patient, a male, aged 24 years, a native of Germany; was admitted to the Swinburne Island Hospital on September 27, 1892, at 11 A.M. His muscular and osseous systems were unusually well-developed, and it was reported that he was perfectly well on the morning of September 27th until 4 A.M., when he first complained of pain in the abdomen, which was followed by two loose stools. He continued feeling well until we saw him at 10 A.M., when, in view of the diarrhea, it was deemed wisest to remove him to the hospital, although his general condition did not indicate that he was suffering from cholera. He objected strongly to his removal, and said that he felt perfectly well. He walked from his berth to the side of the ship and down a rope ladder to the quarantine tugboat. He arrived at Swinburne Island and reiterated his statement that he felt perfectly well, and walked from the quarantine boat to the door of the hospital,

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when *suddenly* he complained of weakness in the knees and fell to the ground in a state of collapse. He was carried to the ward in a condition of partial stupor, from which he was easily aroused. He responded to all questions in a manner showing that his consciousness was perfectly preserved. Soon he complained of agonizing cramp-like pains in the arms, feet and knees, which recurred more or less regularly at intervals of thirty minutes. Immediately after his admission his countenance presented the typical appearance of cholera. The eyes were deeply sunken and surrounded by dark circles, the pupils were contracted to the size of a pin-point. The lips, cheeks, arms, hands, legs and feet were cyanotic, and the entire skin-surface was dry, and when the skin was pinched it remained elevated and compressed for several minutes. There was no pulse at the wrist. The temperature was 98.5° F., the respirations shallow and 18 per minute, and the voice whispering. I was unable to detect any special coldness in the expired breath. He was at once placed in a hot plunge bath having a temperature of 104° F. and was given four pints of a one per cent. solution of tannic acid at a temperature of 104° F.; also two pints of distilled water at a temperature of 100° F., containing 6-10 of one per cent. of sodium chloride and one per cent. of whiskey. He responded but slightly to this treatment; the pulse was scarcely perceptible, was filiform in character and about 100 per minute. At 11.30, or thirty minutes after after his admission, he complained of intense agonizing pain in the legs, feet and hands. These cramps forced the feet into extreme extension, and twisted and distorted the fingers. The pain was so great that it became necessary to administer a hypodermatic injection of gr. one-eighth of morphine. The hypodermoclysis and enteroclysis were repeated. Camphor was given him hypodermatically. He inhaled oxygen constantly, hot bottles were applied to the extremities, and hot air was conducted under the bed-clothing from a large steam radiator. He now vomited a large quantity of a clear liquid and passed several copious rice-water discharges from the bowels. His collapse deepened; the pulse became slow, feeble and almost imperceptible; and his respirations shallow. His intellection was clear, and his condition is best described by the word "terror." At 2.30 P.M., or three hours and thirty minutes after admission, he was extremely restless and anxious, and the choleraic intestinal discharges continued. He moved from side to side, tossing the arms about wildly and calling aloud for air. The hypodermoclysis was repeated and hydrochloric acid and brandy were administered by the mouth. At 5 P.M. he was pulseless and complained most bitterly of intense pain, produced by the tonic spasm of the muscles. These cramps were so violent that the muscles were knotted and felt board-like. At 6 P.M. the hypodermoclysis was

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repeated; the pulse was scarcely to be felt, and thirty minims of whiskey were given hypodermatically and repeated for five doses, but with no effect. He now passed two copious liquid stools containing whitish shreds composed of intestinal epithelium, giving the discharges their rice-water like appearance. At 6.30 P.M. he passed three more stools, and at this time we were unanimously of the belief that he must speedily die. At 7 P.M. he showed slight reaction; his extremities became a trifle warmer and the pulse more easily counted. At 10 P.M. hypodermoclysis and enteroclysis were repeated and a hypodermatic injection of twenty minims of whiskey was given every thirty minutes until 1 P.M. At 11 P.M. the intellect was clear; the eyes were horribly sunken and surrounded by dark circles; the nose pinched; the face shrunken; the voice whispering and so feeble that he was compelled to rest between words in replying to questions. He now complained of pain in the chest and renal regions. His extremities grew warmer and perspiration was visible on the trunk. This symptom was peculiar and rare, as in none of our other cases was perspiration visible. The mental condition—terror—persisted. At this time he ejected large quantities of rice-water liquid by five acts of emesis. At 1 P.M., September 28th, this slight improvement continued, and the hypodermoclysis and enteroclysis and hypodermatic injections of whiskey were repeated. At this time he had three movements of the bowels which were composed of the tannic acid solution given by injection. At 5 A.M. a hypodermoclysis and a subcutaneous injection of whiskey were administered, and at this time the improvement was quite marked and he slept quietly for a few hours. At 8.30 A.M. the enteroclysis was repeated and the whiskey suspended. At 9 A.M. his physiognomy underwent a truly remarkable change for the better, the face became slightly flushed, the ghastly, deathlike pallor disappeared, the expression about the eyes became more natural and the entire skin surface, especially that of the extremities, was warm, and the pulse was of full volume, soft in quality, regular, beating 100 per minute. At 11 A.M. it seemed incredible that such wonderful changes could have occurred in the twenty-four hours which had just elapsed. At 10.30 A.M. the enteroclysis was repeated, and at 10.50 A.M. the pulse was full, regular, soft, and 88 per minute; the respirations were normal and the expression good. He responded intelligently to questions, and the improvement continued.

In both flanks where the needle had been inserted repeatedly for the subcutaneous injection of the sodium chloride solution, the tissues were hyperemic and sensitive to the slightest touch. No extravasation of blood occurred, and in three days these symptoms disappeared. At no time was a single drop of urine excreted. In ordinary cases the

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rate of absorption, after the hypodermoclysis, varies between forty and sixty minutes, whereas in this case three hours were required, thus showing that the power of absorption had been almost abolished. So soon as the liquid was absorbed a second enteroclysis was given. Hypodermatic injections of twenty minims of whiskey were repeated almost hourly until midnight. He passed a good night, vomiting but twice, and had dark-colored stools. His general condition remained unchanged. On September 29th he received champagne and now recognized that he was convalescent. He was given whiskey and Seltzer water, equal parts, every three hours, and at 10.45 A.M. for the first time, precisely forty-eight hours after admission, he passed one pint of urine. The examination of this urine showed a distinct trace of albumin; no sugar; a sp. gr. of 1024; an acid reaction; and in the sediment numerous granular tube-casts. The liquid movements continued every two hours; and again he passed a normal quantity of urine. On September 30th the diarrhea continued to average one stool every two hours, the quantity passed was small and the color had become dark. The patient was excessively irritable and nervous. He improved slowly for two days and then sank into a typhoid state.

There was no enlargement of the spleen or elevation of temperature.

As we feared, but little improvement occurred, and the typhoid state continued until death, which took place on October 5, or eight days after his admission to the hospital.

The post-mortem examination revealed the ordinary changes that are found in cholera; the kidneys showed a severe grade of acute parenchymatous nephritis.

The sixth case was of moderate severity, and the occurrence of an acute gastritis seemed to act as a predisposing cause. He was a native of Russia, aged 12, admitted from the steamship Rugia to Swinburne Island on September 8 as a cholera suspect, suffering with diarrhea and vomiting. The fluid ejected was light in color and large in quantity. He soon improved and was placed at work filling wine bottles, and drank freely of the red wine until he became thoroughly intoxicated. He thereby acquired an acute catarrhal gastritis, the symptoms of which increased on the following day, and soon afterwards he vomited and purged large quantities of rice-water like liquid. His temperature, pulse and respiration remained normal. He rapidly grew worse and soon passed into a stage of collapse. On September 13 his diarrhea continued; he passed a normal quantity of urine, but there had been no vomiting for several hours. The stools were light in color, largely admixed with the tannic acid solution which had been injected per anum. The temperature remained normal.

On September 14 the diarrhea continued, and frequent vomiting

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occurred. The urine was normal in quantity and appearance. The small quantities of whiskey given by the mouth were promptly rejected.

On September 15 vomiting was frequent, with excessive retching and choking, and there was considerable abdominal pain complained of. The urine became scanty and rather high colored.

On September 16 the temperature was 97° F., respiration slow and labored, pulse very weak and scarcely perceptible, beating 100 per minute. Complaint was made of excessive weakness and restlessness. The face and upper and lower extremities, became cyanotic. After the subcutaneous injection of a quart of hot liquid containing three-tenths per cent. of sodium chloride and one per cent. of whiskey, his pulse became stronger and a marked improvement in his general condition was noted.

On September 17 he complained of considerable pain in the lower abdominal region with great restlessness; the vomiting decreased in frequency and amount, and the patient gradually grew stronger.

On the 18th he was stronger, and on the 22d he was discharged from the ward. Bacteriological examination of the dejecta showed the presence of the spirillum of cholera.

Treatment.—In the beginning he was given a hypodermoclysis every two or three hours, averaging a pint, and this was continued in conjunction with enteroclysis, three to six pints, at intervals of four or more hours, according to his condition. Twenty minims of whiskey were given hypodermically, and oxygen was administered p. r. n. His diet was liquid, chiefly composed of milk and beef juice.

The seventh case was unusually mild, and was interesting from the total absence of vomiting. He was a native of Russia, aged 10, admitted from steamship Candia, September 14, with choleraic discharges which continued during the next day, and ceased September 16; at no time was there vomiting. The spirillum of cholera was detected in the dejecta. He was discharged on September 19. Treatment: calomel, grs. vj; enteroclysis every four hours until three were given. No hypodermoclysis.

The eighth case was one of great severity, with marked gastric symptoms; recovery in ten days. The woman was a Russian, aged 28, was admitted from the steamship "Scandia" on September 10 with the diagnosis of cholera, complaining of continuous vomiting, which was at first associated with a burning sensation in the epigastrium. Her extremities and face were cold and cyanotic and her physiognomy was typically choleraic. Her intestinal discharges were copious and frequent and rice-water like in appearance. So many patients were admitted at this time that it was impossible to make careful observations regarding the pulse, temperature and respiration.

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For several hours she was pulseless, respiration shallow, 20 per minute, and temperature 97° F. On the following day vomiting and diarrhea were almost continuous. On September 12 she had but one intestinal discharge, but the vomiting continued almost constantly and was rice-water like in character. Medicines and food when administered by the mouth were immediately rejected. September 13, vomiting still continued; towards the close of the day some liquid ejecta were bile-stained, there was no intestinal discharge. On September 14, vomiting continued, but still no movement of the bowels, though enemas were given at 9 A.M. and 6 P.M. with the idea of securing evacuations. On September 15, vomiting continued with much less frequency and a stool was secured by enema. On September 16, there were numerous acts of vomiting and one normal stool. On September 18, she was convalescent, and on the 21st was discharged from the hospital. The spirillum of cholera was found in the matter vomited.

Treatment.—At first she received a plunge bath, the water having a temperature of 104°; enteroclysis, two quarts, for two days, and one hypodermoclycis of two pints of the saline solution. Attempts were made to administer champagne and whiskey by the mouth, but they were both rejected. On September 13, she received ten grains of calomel, which was repeated on September 15. Ten drops of hydrochloric acid were given from time to time.

The ninth case, like the sixth, would seem to illustrate how an acute gastric irritation or catarrh increases the susceptibility to cholera. It is probable that he was infected during his stay in the hospital, inasmuch as there was no cholera on board the ship for some days, he showed no choleraic symptoms until the evening of the second day after his admission to the cholera ward. He was a Polish Jew, aged 18, a butcher by occupation, and a steerage passenger on the steamship Bohemia, which arrived on September 15. He was admitted to the wards on Swinburne Island on September 21. He had a well-developed osseous and muscular system and seemed fairly strong. The face was of a dark red color, especially in the nasal and maxillary regions; the eyes were deeply sunken with dark lines surrounding them; but the intellect was clear; the tongue was pointed and its dorsum was covered with yellowish-brown fur.

The first symptom was diarrhea, which was repeated three times during the day. While on the ship he was bottling wine and drank to excess, and, in consequence he had several attacks of vomiting which were accompanied by great pain and retching. On the morning of September 21 he was quite well and was discharged from the convalescence ward, and during the night he had three large passages which

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were fluid, yellow and painless. On September 22, he had three intestinal movements, liquid, and yellow, in which floated shreds of intestinal epithelium. The next day movements occurred smaller in amount and less frequent, and there was no vomiting; the urine was scanty. The rectal temperature was 100.6; pulse was 98; respirations 19. He gradually improved, and on September 27 was discharged.

On September 20, the stools were dark in color, fluid, frequent, and mixed with mucus. The temperature was 98; pulse 97, and respiration 18; at 9 P.M. 97.4 temperature; pulse 96, and respiration 16. He was very restless and complained of an obscure uncomfortable laryngeal sensation, which seemed to be more of a paresthesia rather than a pain. He passed a good night, and a sufficient quantity of normal urine was excreted. September 21, temperature during the day was 99.2; pulse 94 to 96; respirations 20 to 18. Three moderate sized whitish watery mucous stools were passed; the patient sat up during the day, but complained of pain in the left side; he excreted in twenty-hours 46 fluid ounces of urine. His improvement was so rapid that he was directed to sit up and sent to the convalescent ward. During the night he became worse and diarrhea returned, and he was again placed in the wards. September 26, temperature was 98.5 to 99; pulse 98 to 97; expirations 15 to 24. He passed three watery yellowish stools and slept on and off during the day and said that he felt much better. At no time was pain complained of. He passed thirty-two ounces of urine during the past twenty-four hours. September 23, temperature 99 to 99.5; pulse 76 to 80; respirations 16 to 22. He had passed six light colored, yellowish, liquid stools; there had been no vomiting; the urine was passed in normal quantities, and he had been able to sleep fairly well. September 24, pulse and respiration normal; sleep normal; no vomiting and there were but three yellowish watery stools, and the urine was normal in quantity. September 25, pulse, respiration and temperature normal; three liquid stools. September 26, he was discharged from the convalescent ward.

Treatment.—Calomel, ten grains, followed by one grain every hour for six doses. Enteroclysis, Ovj, every two hours; whiskey hypodermically, to the extent of drachms ij, which was administered during the night. Beef tea and Seltzer water p. r. n. September 21, an enteroclysis was given every four hours and whiskey, drachms ij, was given by the mouth every four hours. September 27, rectal injections of tannic acid solution were discontinued, and a light easily digested diet was ordered. September 23, enteroclysis was resumed, and on September 24, Squibb's cholera mixture, one drachm was given t. i. d. Whiskey, drachms ij was given three times daily as it was necessary to stop enteroclysis and hypodermoclysis.

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The tenth case requires no special comment and occured in a man aged 18, who was removed from the steamship Bohemia, to the ward of the hospital on September 20. On admission his temperature varied from 99.4 to 99.6; pulse 98 to 100; and respiration 20 to 24. He had considerable abdominal pain and diarrhea, and vomited continuously a greenish watery liquid.

September 21, respiration and temperature about the same, on several occasions a yellow greenish liquid was vomited, and five liquid movements occurred during the day. He slept well; the urine that was passed was normal in appearance and quantity. September 21, pulse, respiration and temperature unchanged; the vomiting and diarrhea were frequent, and the ejecta were milk-like in color and small in quantity, and contained some mucus. September 23, frequent vomiting of a yellowish liquid. One small stool passed normally. He complained of but a moderate amount of pain in the abdominal region and slept well. September 24, no complaint of pain; pulse, temperature and respiration unchanged. On September 25 he was considered convalescent, and was discharged the following day.

Treatment.—Upon admission he received a hot bath and was given ten grains of calomel; whiskey was given every four hours by the mouth, but it was rejected and we were compelled to resort to hypodermic injections of ten minims thrice daily. September 21, whiskey every four hours was ordered, and one enteroclysis of two pints was administered. September 22 was a repetition of September 21, and on the 23d whiskey was administered by the mouth in two tablespoonful doses every four hours, and a hypodermic injection of one-eighth grain of morphia for abdominal pains.

The eleventh and final case was one of great severity, and we attributed the favorable result largely to the treatment employed. It occurred in a girl, aged 6, admitted from steamship Bohemia, September 27, at 11 A.M., in a state of marked collapse, with coldness of the entire surface and with the characteristic facies of Cholera Asiatica, and cyanosis of the face and upper and lower extremities. Her mental condition is best described by the word "stupor." Her pulse was scarcely perceptible and very rapid. She had frequent attacks of vomiting and diarrhea, and the stools were fecal and dark in color. Her respirations were labored, shallow and 22 per minute. The pulse was 122. No urine was excreted. The temperature was 97.8° F. On September 28 the vomiting continued, and there were but two liquid stools. In the afternoon a moderate quantity of urine was passed—the first for thirty hours. The passage of the urine in our cholera cases was always viewed as a most favorable indication. The pulse improved in force and volume, the respirations were slow and labored

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and the temperature was normal. On September 29, the pulse still showed signs of increasing strength, averaging 100 to the minute, the respirations were quiet and 20 per minute, the temperature normal, and a fair amount of sleep was secured. There had been but one liquid intestinal movement and a sufficient quantity of urine had again passed. On September 30, there was one act of vomiting which seemed to have been excited by the remedies administered. The respiration was normal and the temperature remained unchanged, and the pulse was small and weak, 100 per minute. But two loose intestinal discharges occurred. The improvement continued though she remained in a partial typhoid state. The urine was passed in moderate quantities, and in a few days she was discharged from the hospital.

Treatment.—Upon admission she received a hot plunge bath, an enteroclysis, a hypodermoclysis and camphor and ether m. xx hypodermically. Oxygen was administered p. r. n. She had hypodermic injections of ℥. x. of whiskey every two hours for five days. The enteroclysis was repeated every two hours and hypodermoclysis but once. On the following day, September 28, the enteroclysis was given at 9 and at 11 A.M., and at 1 P.M. the second hypodermoclysis was administered. The hypodermic injections of whiskey were persisted in. On September 29, the hypodermoclysis was administered at 1.30 P.M., and the enteroclysis at 1 and 5 A.M., and the hypodermic injections of whiskey were given at 10 A.M. and 4 P.M. September 30, hypodermoclysis and enteroclysis were suspended and seltzer water and tincture of senna were administered by the mouth. October 1, improvement continued, and during the day there were but two loose dark-colored stools and no vomiting.

Mortality.—Of the eleven cases of cholera under my personal observation, eight recovered and three died, which is a mortality of 27 per cent. As one of these cases died two hours after admission, it could be fairly excluded in giving the percentage of deaths of cases under treatment, which would reduce this mortality to 18 per cent.

The total number of cases admitted to the Swinburne Island Hospital was seventy-two, and the number of deaths was twenty, or a general mortality of 27 per cent. In addition, fifty-six suspects were admitted, of whom forty-six presented the prodromic symptoms of cholera. If these were included, our mortality would be reduced to 17 per cent. The mortality from all cases under treatment, including the forty-six suspects and excluding the deaths occurring within two hours after admission and those deaths occurring later from complications, would be 11 per cent.

The mortality of the cases of cholera that occurred on shipboard varied between 50 and 98 per cent., while the percentage of deaths in Hamburg varied between 50 and 60 per cent.

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In considering the number of deaths in relation to the question as to how far the treatment was responsible for this low rate of mortality, it is well to remember that most of our patients were half-starved, rachitic and anemic Russian emigrants, many of whom were children; that they were in a specially weak condition, due to the long voyage and also to the fast days which their religion imposed upon them; that the premonitory stage in the epidemic was present to a slight degree or not at all; that many died before the treatment could be inaugurated, and that this epidemic was especially virulent.

Despite these unfavorable circumstances our general mortality was but 27 per cent., while that of Hamburg was from 50 to 60 per cent. After a very careful deliberation, in which we discussed everything that could have influenced the percentage of mortality, we were convinced that it was chiefly due to the method of treatment employed.

Treatment.—As to prophylactic treatment, the rules found necessary were both few and simple. Each of us wore a separate suit of clothes for the hospital, and avoided physical contact with patients except when it became necessary. Regularly, each time after examining a cholera case, we would wash the hands thoroughly with hot water and soap, afterward immersing them in a 1 : 500 solution of bichloride of mercury. The convalescents and those employed about the hospital were instructed to drink a lemonade of ten drops of hydrochloric acid to the glass of water. No ordinary water was used, and we drank exclusively of carbonated distilled water or Apollinaris water. All foods were thoroughly cooked, and green vegetables, salads, and indigestible foods were avoided. These precautions were so effective that, despite the dense ignorance of the people under our care, but two cases of cholera originated on Swinburne Island. In both instances these emigrants drank red wine until they became thoroughly intoxicated, and this was followed by acute catarrhal gastritis and infection by the spirillum of cholera. We had no experience in the treatment of the primary stage, as all our cases were fully developed when they came under observation.

In the treatment of the stage of collapse the patient was first immersed in hot water, and then given a subcutaneous injection of a quart of hot, sterilized water, containing six tenths per cent. of sodium chloride and one per cent of brandy. This procedure is known by the name of hypodermoclysis. The first injection in an adult may be one or two quarts. In but one of our cases did an abscess form. Usually the only complaint made when this operation was frequently performed was sensitiveness and pain on light pressure over the region of the punctures. In favorable cases absorption takes place in from thirty to forty-five minutes, but in those cases where collapse approached death,

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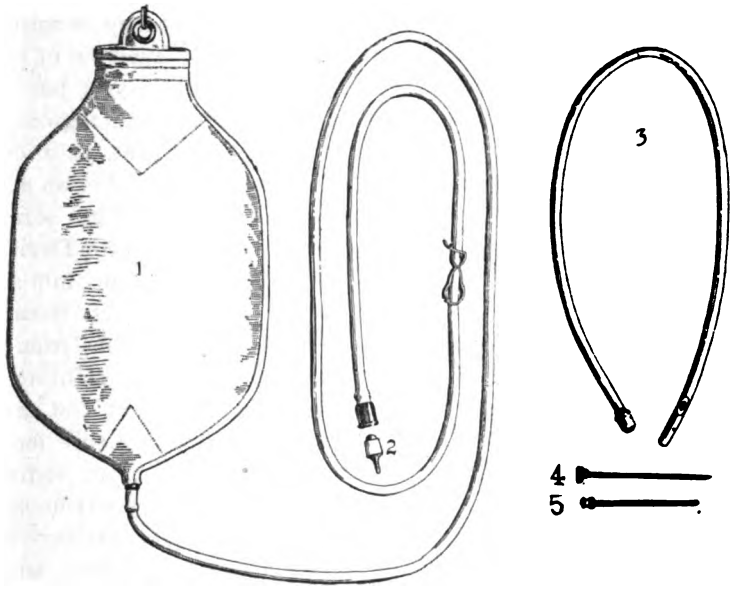
as long as four hours may be required. It therefore becomes evident that the rate of absorption is of great prognostic importance. The best position for these subcutaneous injections is in the flanks, in the region of the floating ribs, in the median axillary line, although it may be administered in the buttocks or inner aspect of the thighs. The neck is to be avoided, as there is danger of producing edema of the larynx. Ordinarily, a hypodermoclysis may be repeated every two hours, and in severe cases it may be well to inject one quart in each flank, repeating the injection so soon as it has been absorbed. In supplying the indication for heat it is necessary that the solution should



1. Rubber resevoir and tube of ordinary fountain syringe for administering hypodermoclysis.
2. Attachment for canula used for hypodermoclysis.
3. Soft rubber rectal tube.
4. Needle for hypodermoclysis.
5. Canula for hypodermoclysis.

have a temperature of about 104° F., and care should be taken that it is thoroughly sterilized immediately before it is introduced beneath the skin. In each of our cases a Davidson syringe was employed, but I would strongly urge the adoption of the ordinary fountain syringe, as by this means the liquid may be slowly introduced, and hydrostatic pressure controlled to a nicety by raising or lowering the reservoir. It requires from twenty to thirty minutes to introduce one quart of liquid, and usually it is unnecessary to attempt to disperse the fluid by manipulation, though it may be advisable in grave cases

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where rapid absorption becomes necessary. As one would naturally suppose, this subcutaneous liquid forms a large oval swelling, the size depending upon the amount of liquid introduced.

A good working rule regarding the quantity of the injection is the following: For an adult, two pints; for adolescents, one pint; for an infant, half a pint.

We found that the best place for the hypodermoclysis was in the mid-axillary line in the region of the floating ribs. In an adult a quart of the solution may be introduced in this locality, and when the case is urgent a second quart may be introduced at a corresponding point on the opposite side. When it is desirable to change the locality, the inner surface of the thighs or the chest may be selected. Observation has shown that there is danger in the injection of liquid beneath the skin of the neck. Fatal edema of the larynx has been reported in two cases where the injection was made in this region.

An enteroclysis consists of a one to two per cent. solution of tannic acid, having a temperature of 45° C. or 113° F. For an adult, two quarts may be given; for an adolescent, one quart. This solution should be introduced very slowly, and in each of our cases the Davidson syringe was employed, but I should advise the use of a medium-sized soft-rubber rectal tube, having one outlet one-half inch from the extremity, and a second on the opposite side, two inches from the extremity, and the terminal portion closed so as to facilitate its introduction. In an adult this tube should be well oiled and gently and slowly introduced by a slight rotary and inward pressure for the distance of ten inches. To this tube should be attached an ordinary fountain syringe, the same as the one suggested for hypodermoclysis. The advantage of this method is that the hydrostatic pressure may be modified immediately to suit the particular case in question, and in this manner the rate of discharge of the liquid may be regulated. It is necessary that the solution should be *slowly* introduced, occupying not less than *ten minutes*. The tube should then be slowly withdrawn, and gentle pressure applied to the anus in an inward direction toward the anterior perineum. The patient should be encouraged to retain the liquid so long as possible. Not infrequently if the first desire to void the injection is overcome, it is retained without further difficulty.

It has been hitherto generally believed that the ileo-cecal valves prevented the entrance of liquids from the colon into the ileum. In many of our cases, after giving an enteroclysis of tannic acid we were convinced that the liquid entered the small intestines, and this opinion was strengthened when several of our patients vomited this same solution.

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In order to investigate this matter more carefully, the following experiments were made:

A fountain syringe containing three pints of water was suspended at an elevation of five feet, and a rectal tube introduced for a distance of six to ten inches.

CASE I.—Male child, aged 2 years; dead of cholera; the liquid passed readily, filling the intestines and stomach.

CASE II.—Male child, aged 2 years; dead of marasmus; liquid passed freely, filling the intestine and stomach.

CASE III.—Child, aged 6 years; dead of measles; the liquid passed readily through the entire intestinal tract, and flowed from the mouth and nose.

CASE IV.—Child, aged 3 years; dead of measles; the liquid passed readily through the ileo-cecal orifice, filling the small intestine.

CASE V.—Child, aged 3 years; dead of measles; the liquid refused to pass. A post-mortem examination showed that the colon was over-distended and that there was a twist in the ileum against which the distended colon pressed, rendering it impossible for liquid to pass into the ileum.

CASE VI.—Female child, aged 18 months; dead of measles; the liquid failed to pass both before and after opening the abdominal cavity. It this case the ileo-cecal valve was small and the lips of the valve were in close apposition, rendering it impossible for any liquid to pass from the colon into the small intestine.

CASE VII.—Child, aged 2 years; the liquid refused to pass; upon examination the ileo-cecal valve was found to be competent.

These observations show that in two cases the valve was competent to prevent irrigation of the small intestine, and in one case, owing to the peculiar twist in the ileum and the pressure of the over-distended colon, liquids failed to enter the ileum. This case is particularly instructive, and shows that in a certain number of cases success may be looked for, even though the first attempt prove unsuccessful. In four cases there was no difficulty whatever in the passage of liquids from the anus to the stomach, or even out through the mouth and nose.

As *coldness* of the body and *lowering* of the *central temperature* is an almost constant condition in Asiatic cholera, it becomes necessary to supply heat. This is accomplished by heating the liquids used in hypodermoclysis and enteroclysis, and also by the hot plunge bath, which is always given to the patients in the state of collapse. I should further advise that the entire skin-surface be covered by soft, woollen undergarments, and from time to time hot air should be conducted beneath the bed clothing. Advantage may also be taken of hot air

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bags and hot bricks. The patient should be covered by two woollen blankets and a counterpane. A most excellent practical suggestion to add to the heat of the body has been made by Dr. Francis X. Dercum, namely, that the patient be placed upon a water-bed, through which hot water should constantly circulate.

Stimulation.—The best method of administering stimulants is by deep hypodermatic injections of whiskey, repeated every hour or less frequently, according to indications. For an adult, twenty minims may be employed; for an adolescent, ten minims; and for an infant, five minims. During the stage of collapse, if there is any tendency to vomiting, it is wisest to avoid the administration of any substance by the mouth.

Lavage.—As the stomach frequently contains large quantities of choleraic liquid, it is often advisable that a soft rubber stomach tube be introduced, and that lavage be thoroughly performed, using the hot tannic acid solution as in washing out the intestines.

Hydrochloric Acid.—As the growth of the spirillum of cholera is inhibited by an acid medium, and as hydrochloric acid is the normal acid of the gastric juice, it is desirable that it be administered diluted in a glass of water at intervals of two hours. An adult may receive fifteen minims; an adolescent, ten minims; and an infant, five minims, taken slowly in sips.

Nourishment—Liquids.—The only nourishment that should be administered is peptonized milk, or milk that has been sterilized, in small quantities, about two ounces every two hours. If this is not well received, it may be surcharged with carbonic acid gas, or koumiss may be substituted. Iced champagne, in small quantities, may also be given, or iced wine-whey made in the proportion of one part of sherry wine to four parts of milk. The only liquid that should be permitted is carbonated distilled water. When vomiting is persistent, all attempts to administer remedies or food by the mouth should be avoided.

In conclusion, I cannot refrain from acknowledging my hearty thanks to Drs. Byron and Abbott, of the Loomis Laboratory, New York, to whom I am not only indebted for the opportunity of making this clinical study, but also for the many courtesies which I have received at their hands; and further, to Dr. Byron is due the credit of having initiated the treatment of these cases in the manner herein pointed out.

To Dr. Jenkins, the Health Officer of the port of New York, my thanks are due for his many kindly courtesies, and for the aid which at all times he gladly extended to me.

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THE MYDRIATICS IN OPHTHALMOLOGY.[1]

By S. D. Risley, M.D.,

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I call your attention to-day to the mydriatics and their employment in ophthalmic practice.

The use of this interesting group of drugs furnishes probably the most important chapter in the local therapeutics of ophthalmology. The promptness and unformity with which they display the physiological property from whence they derive their name, never cease to command the attention and excite the interest of the careful observer. It should be anticipated however, that any family of drugs possessing such decided potency, would not only be of great value as therapeutic agents, but must possess also great power for harm if unwisely administered. Indeed, I might very properly entitle these remarks "the use and abuse of the dilators of the pupil."

The five members of the group to which your attention is called are those only which experience has proved to be of greatest value in ophthalmological practice, viz.: The salts of atropine, hyoscyamine, duboisine, homatropine and cocaine. These do not comprise all the alkaloids extracted from the solanaceæ but are those which are habitually in use, and are therefore sufficient for the purposes of this lecture.

The mydriatic alkaloids extracted from this curiously interesting family of plants—the solanaceæ—are, chemically considered, very complex. Although much time has been devoted to their study in the laboratory, there remains much confusion, and on the whole they furnish a promising field for skilful and patient chemical work. When subjected to the methods of manipulation now in vogue, they yield a group of alkaloids differing more or less widely in their physiological properties, although obtained from a common source. It seems, moreover, that the methods employed for extraction determine in large measure the nature of the product. For example, the alkaloid derived from the atropa belladonna will be atropine if extracted in the presence of an alkali, as soda or potassa, whereas without these the product will be hyoscyamine. The only means by which the chemist is able to differentiate the product is by the fact that hyoscyamine has the property of rotating a beam of light to the left, while atropine possesses no polarizing power, and chemically they are isomeric, having the common for-

[1] A lecture delivered at the Philadelphia Polyclinic Hospital and College for Graduates in Medicine, November 18, 1892.

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mula $C_{17}H_{23}NO_3$. This has led to the impression that atropine and hyoscyamine are identical.

As found in the market the alkaloids may be placed in two classes,[1] the first of which would properly include those with a simple homogenious base and having the above formula. To this class belong atropine, crystalline hyoscyamine and hyoscine. In the second class are included those having mixed bases, comprising the simple alkaloids of the first class, as they are found mixed in the plants of the natural order of the salanaceæ, viz.:—the atropa belladonna, duboisia myoporoides, datura stramonium, scopolio japonica, etc. To this class belong the commercial daturine, duboisine, amorphous hyoscyamine and scopolein. I shall endeavor to show you to-day that at least three members of this class possess, in some respects, essentially different physiological properties when used as mydriatics, notwithstanding their common parentage, chemical similarity and possible identity; therefore that in their employment as therapeutic agents we should be careful to secure a carefully isolated product as represented in the crystalline salts as against the mixed bases as represented in the amorphous commercial product. Very much of the confusion regarding their physiological properties and relative therapeutic value, doubtless, has grown out of the employment of these mixed bases. The immediate harm resulting from the use of an impure product displays itself first of all in the irritation of the conjunctiva and cornea, and second, by the variable duration of the resulting dilatation of the pupil and paralysis of the accommodation. It is, first of all, important that the solutions of the salts of these alkaloids should be bland, since any irritation of the tissues is especially harmful and directly opposed to the purposes for which the drug is usually employed.

The mydriatics are employed by the ophthalmic surgeon—

(1) As simple dilators of the pupil for the purpose of better examination of the structures lying behind the iris.

(2) In the treatment of a large group of inflammations of the ocular tunics.

(3) For the paralysis of the accommodation.

In each of these it is obvious that any irritation of the external tunics should be avoided, since the excessive lachrymation washes the solution away in the tears, and probably the resulting congestion prevents absorption. To this end, only neutral solutions of the crystalline salts in distilled water should be employed. It is probable that much of the atropine conjunctivitis, of which we formerly heard so much, was due to the neglect by the pharmacist of this precaution. In dispens-

[1] Vide. Trans. Am. Oph. Soc., December 1891, page 203. A Note on Hyoscyamine by S. D. Risley, M.D.

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ing them the pharmacist should use mortars or other implements used only for this purpose, since it is very difficult to cleanse thoroughly an ordinary mortar in which some acid mixture has been previously compounded. Such precaution will avoid, in many cases, the irritating properties of many eye-washes from which our patients so often suffer.

As Dilators of the Pupil.—In the thorough examination of the eye it often becomes necessary to enlarge the pupil. This is especially necessary for the careful inspection of the crystalline lens and vitreous body. It not infrequently happens that opacities of the lens, commencing in the extreme periphery, may be overlooked if the examination is made through the narrow pupil, since the iris then lies in front of that part of the lens involved in the pathological process.

In disease of the choroid and ciliary body, web-like or fine granular opacities frequently occur in the vitreous, and veil or obscure more or less any image of the eye ground, giving a foggy appearance to the tissues under inspection, and are therefore liable to lead to erroneous opinions as to the cause of the obscuration, the condition of the vitreous being difficult to detect through a narrow pupil. With the dilated pupil, however, and a magnifying glass, the cause of the blurred image, if due to want of transparency in the vitreous, can readily be detected. For this purpose cocaine or homatropine should be selected, or the two may be used in combination. The latter course is ordinarily preferable, since a wider dilatation is secured than where either is used alone. They are desirable, furthermore, because of the shorter duration of the mydriasis than when atropine is employed. In many cases the cocaine, in two per cent. solution, is quite sufficient, and to be preferred, since the accommodation is very slightly disturbed, and in from one and a half to three hours the pupil is quite restored. The patient is thus saved the great annoyance arising from the blurred vision due to paralysis of the accommodation, and also the prolonged mydriasis produced by the other mydriatics. The annoyance will last about twenty-four hours if homatropine is used, between three and four days from solutions of duboisine, while hyoscyamine will last one week and atropine from ten to fifteen days. The great saving of time and annoyance to the patient, therefore, most forcibly commends the employment of cocaine or homatropine where the purpose designed is simply the advantage gained by a temporary dilatation of the pupil.

If there are adhesions between the iris and lens capsule the use of the mydriatic will reveal their presence for diagnostic purposes, as in cases of iritis, but where used to detach these adhesions, one of the stronger mydriatics should be selected.

The Treatment of Inflammations.—The mydriatics are used as therapeutic agents in the treatment of a large number of inflammations

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of the eye, both for their local anesthetic properties, and their mechanical effects as dilators of the pupil.

In abrasions of the cornea, in severe traumatisms, both by accidents or after many operations, in keratitis, phlyctenular disease, iritis, etc., they are of great value, and for this purpose the salts of atropine are usually employed. The drug is first of all cheaper than the others of the group, and I have a suspicion that it possesses local anesthetic properties in greater degree than hyoscyamine or duboisine. In the milder forms of inflammation, or in minor injuries, as superficial abrasions of the cornea, which usually make a speedy recovery, homatropine either alone or combined with cocaine is to be preferred.

The method of employment is often of much importance. In the treatment of inflammations you will find solutions of sulphate of atropine, gr. iv—f℥i a useful standard strength to employ. In the case of children with phlyctenular disease of the cornea, so many examples of which you have seen under treatment at the clinic, it has long been my habit to detain them, making frequent instillations of the standard atropine solution until full dilatation of the pupil is secured. When this is reached you will often have the satisfaction of seeing the photophobia and lachrymation disappear, and the little sufferer open the eyes and look about, possibly the first time for many days or weeks. Not infrequently the cure will date from such a treatment, but oftener it may have to be repeated day after day, each succeeding day the child returning with contracted pupils. The parents should have a solution at home, and be instructed in the method and frequency of its use. In young children the head should be firmly held between the knees of the surgeon and the parents instructed to use the same method. The excessive flow of tears in such cases not only dilutes the solution, but makes it difficult to have the drug retained sufficiently long for absorbtion. In these cases you need have little fear of poisoning the child, partly because of the overflow of tears, but also for the reason that the nose and lachrymal passages are involved in the pathological process, and the latter partially or entirely closed by the turgid mucus membrane. While a single drop of the standard atropia solution dropped into the healthy conjunctival sac of a child may cause constitutional symptoms, by entering the stomach, through the tear ducts it may in these cases of phlyctenular disease be used with the most lavish freedom without general disturbance.

In the treatment of acute iritis we witness, however, in the highest degree the value of this important medicine. The permanent damage resulting from this serious disease is in a large measure due to adhesions of the iris to the anterior capsule of the lens. The soft and elastic iris, in health, lies in contact with the lens and moves

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to and fro over its surface with every change of light and shade, but when the plastic forms of iritis occur, the small beads of lymph poured out from its surface glue it, very speedily to the lens capsule, and very firmly too, if the attachment is not disturbed at an early stage of the disease. It is not my purpose here to detail the unfortunate sequellæ of these attachments, or posterior synechia, as they are called. They are however, often the *fons et origo* of some of the most destructive pathological processes, which we are called upon to treat. This is particularly true in cases of recurrent iritis. It is therefore of the greatest importance to recognize the disease at the beginning and prevent the formation of these attachments by securing a wide dilatation of the pupil. By this means you draw the iris back from its contact with the anterior capsule of the lens and prevent the plastic adhesions. This disease is usually a painful affection so that the anesthetic properties of the mydriatics are important in securing your patient's comfort. If seen early, in the stage of hyperemia, it is usually not difficult to dilate the pupil, but later when synechia have formed, or the tissues of the iris are not only turgid with blood but infiltrated with the products of inflammation, the task is more difficult and often impossible until other measures for its relief have been adopted, *e. g.*, local, blood-letting, the use of mercurials, etc. Here also as in phlyctenular disease it is often necessary at the first sitting to make frequent instillations of atropine solutions gr. iv, or even gr. viii—f℥i, at intervals of fifteen minutes. If after an hour or more there is no result, I have often seen the pupil rapidly dilate, and the pains relieved by the abstraction of blood from the temple. Caution should be observed, lest the unpleasant constitutional effects of the drug are produced by its entrance into the stomach by the way of the tear ducts. This can be avoided by placing the finger, armed with a napkin or absorbing cotton, between the lids at the inner canthus, allowing it to absorb the tears for a moment after the instillation. The use of 2 per cent. or 4 per cent. solutions of cocaine with the atropine adds greatly to the anesthetic effect of the drug, but must be used with caution, lest it disturb the nutrition of the cornea. It is probable that the anesthetic properties of the cocaine depend upon its power to deprive the tissues of their blood supply. If this is true, it is not prudent to keep the tissues too continuously under its influence.

I cannot pass the use of the mydriatics in inflammatory diseases of the eye without a caution. There is one form of disease in which they certainly do harm. A form of disease moreover which possesess many symptoms in common with iritis in which as we have seen it is so important that these drugs should be used early and vigorously. I allude to glaucoma. A brief analysis of the symptoms of each will serve to set forth the danger of mistake.

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Iritis, acute.		*Glaucoma, acute.*
Redness.		Redness.
Pain.		Pain.
Dim vision.		Dim vision.
Photophobia.		Photophobia.
Lack lustre to iris from infiltration.		Lack lustre in iris from steamy cornea.
	Differ	
Small pupil.		Pupil moderately dilated.
Cornea transparent.		Cornea steamy.
Cornea sensitive.		Cornea insensitive.
Tension normal.		Tension increased.
Field normal.		Field abnormal.
Anterior chamber normal depth.		Anterior chamber shallow.
Bright zone of ciliary redness.		Dark or purplish dilatation of blood vessels.

Thus it will be seen that while these severe forms of eye disease possess many features in common, there is also a large group of symptoms which in typical forms of the disease definitely separate them. It leads me beyond the purpose of this lecture to discuss fully why this family of drugs do harm in glaucoma, since it involves the theories regarding the cause and nature of this disease.

It is sufficient for my present purpose to state, that our present knowledge of glaucoma seems to teach that at least one important element in its etiology is the closure of the angle of the anterior chamber, so that the exit of the intra-ocular fluids by the way of Schlemm's canal is retarded or entirely prevented. It is obvious that crowding the iris into the angle by dilating the pupil would render its closure more complete, and thus in cases of *glaucoma imminens*, be liable to precipitate an acute glaucoma. The obvious lesson taught both by experience and these theoretical considerations is to avoid the use of these drugs in doubtful cases. The wise surgeon will avoid their use except with the greatest caution in all cases where there is increased tension of the eyeball, with diminished range of accommodation not accounted for by other recognized conditions, or with characteristic abnormalities in the field of vision.

Before entering upon the use of mydriatics for the purpose of paralyzing the accommodation, in the correction of errors of refraction, I call your attention to their employment during and after middle life. There is a wide-spread opposition to their employment after the age of forty, since it is during the middle period of life that glaucoma usually occurs. I am sure that the fears upon which the opposition is based are not well founded if due caution is exercised on the lines I have already pointed out. It is quite as important between forty and fifty years of age to use these drugs for the satisfactory correction of many eyes as before this period of life. The cases of retino-choroidal irri-

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tation, and accommodation cramp with tonic contraction of the iris and ciliary muscle, are quite as frequent as before the age of forty, and the therapeutic value of the mydriatics is just as marked. A wide experience fully justifies this statement. I have used these drugs with impunity, both in private and public practice in many thousands of eyes, after the time of life specified. If harm comes from them it is because a sufficiently careful study of the case has not preceded their use. I have yet to meet the first instance of an acute glaucoma, precipitated by the employment of a mydriatic, but I have always exercised the caution which I have pointed out and again emphasize as the duty of every person essaying their use.

In Philadelphia, probably more universally than elsewhere, the use of these drugs has been insisted upon as necessary to the accurate correction of errors of refraction. This has largely grown out of the claim that the emmetropic eye is not only the model, but the normal eye, and that all departures from this simple standard of refraction are defects, and in the presence of asthenopia apparently due to their existence, should be carefully, accurately and fully corrected by glasses. I accepted this view very early in my practice, and a steadily widening experience has served only to strengthen the conviction then formed. In the endeavor to correct the manifest error of refraction we are dealing with an unknown, because an ever changing quantity, which constantly vitiates results, and the work done is unsatisfactory because it does not secure perfect relief.

There is a wide-spread notion among the laity that the avoidance of reading glasses as long as possible is to save their eyes; that the necessity for a glass to read or work with is a sign of failing vision. They should be taught that the diminishing range of accommodation is physiological not pathological, and it is not only useless but harmful to resist it. This working without a glass to correct the presbyopia is a source of much harm to the eyes, and the cause of much suffering. I have, in a very large number of persons, seen violent headache and other reflex symptoms disappear as soon as a proper reading glass was secured. I recall the case of a celebrated clergyman, in charge of a large parish, and doing a large amount of literary work besides, who suffered from occipital pain, which had been ascribed to cerebral hyperemia. He was advised to relinquish his work and travel abroad to secure relaxation and thus avoid a nervous breakdown. He was fifty years of age and prided himself upon his excellent eyes, since he had not required a glass to aid him at his work. His pupils were the size of a pin's head; the conjunctiva was hyperemic; the caruncles swollen; $V = \frac{6}{vi}$ and he read easily $D = 0.50$, at $30^{\underline{ctm.}}$, but had no range of accommodation.

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A few days' use of a solution of homatropine, gr. viii–ʒi, dilated the pupils to large medium. The headache promptly disappeared and H = 1. D was revealed. He received + 2.75 for reading, increased in six months to + 3.25. He was no longer able to read even large type without his glasses, but he had no return of his trouble and abandoned all idea of relinquishing his work.

The headache of old people is very frequently due to the eye strain brought about by the use of too weak glasses, or from the neglect of astigmatic corrections. It is true, they have lost the power of adjustment through the hardening of the lenses, but they have not lost the ciliary muscle, and the fruitless strain to see with an improper glass is quite as painful and often as harmful to the eyes as earlier in life. It is in these cases you will find the solutions of homatropine of signal service. It should be used in from iv to viii gr. solution three times daily until the ocular irritation subsides and then the proper glasses chosen.

It is in young eyes, however, that the use of these drugs is most frequently needful. I wish to impress upon you, however, that they are not to be employed for the sole purpose of paralyzing the power of accommodation. This is of great importance, and in most cases a necessity if you are not to be satisfied with more or less close approximations in ordering the correcting glasses. My purpose has always been to determine with the greatest possible accuracy the static refraction of each eye. Having ascertained this it may be used in any way the judgment of the surgeon may dictate, but until this knowledge has been gained all subsequent action must be based upon unknown factors, and this knowledge cannot be had except through measurements made after thorough paralysis of the accommodation.

You will not use these drugs for this alone, however. A very large percentage of refraction cases suffer from irritation and pathological changes in the intraocular tunics, the result of neglected eye-strain. The wooly choiroid, hyperemic retina and optic disc you will find to rapidly disappear under the sedative and restful influence of the mydriatics. I am sure you will soon learn to prize them for their therapeutic value as well as for the paralysis of the ciliary muscle.

How shall you employ them?

The method of their employment and the member of the group you select will depend in large measure upon the condition of the eyes in any individual case. In eyes which are nearly or quite free from retino-choroidal irritation, homatropine hydrobromate will prove sufficient and the most desirable agent to employ. The property which most commends it, in comparision with the other members of the group, viz., its evanescent control over the power of accommodation,

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makes it necessary to keep your patient at hand so that the determination of the refraction can be made before the subsidence of its effect. I employ an viii gr. solution of the drug, instilling one or two drops in each eye every fifteen minutes for an hour or more, and often associate its use with a four per cent. solution of cocaine. They are not used at the same moment, however, since the cocaine solutions cause much temporary irritation. After the smarting has subsided the homatropine is instilled. In many cases you will be able to save your patients much time and annoyance by this method, since in from twenty-four to thirty-six hours its influence over the pupil and accommodation will have disappeared. It may also be selected in cases where retino-choroidal irritation is present, but must then be used for many days, or long enough to secure the needed rest and therapeutic effects already noticed. When employed for this purpose, it should be used at home, one or two drops being instilled in each eye four times daily. When used in this way, however, it proves of but little if any advantage in point of time over duboisine or hyoscyamine, since what is lost by the longer time required to recover from these drugs is gained by the shorter period required to accomplish the result wished for. All things considered, I prefer the hyoscyamine to either of the other mydriatics in the average case of asthenopia, and employ habitually a ii gr. f℥i solution. One drop in each eye three times daily. It has the advantage of being less liable to cause constitutional symptoms than a iv gr. solution of atropine or a ii gr. solution of duboisine. Furthermore, the accommodation is recovered several days sooner than when atropine is employed —the average duration of the paralysis with hyoscyamine being seven or eight days while that of atropine is from ten to fifteen days. In order to secure this result, however, you must be sure that the preparation used is hyoscyamine. Some recent investigations, still in progress at the Wills Hospital, seem to show that the atropine of commerce is in fact hyoscyamine, while, on the other hand, much of the hyoscyamine is really atropine. This grows out of the fact that the product secured in the laboratory depends upon the manipulation used in its extraction. If too great heat and alkalies are avoided the product is hyoscyamine, which, by either heat or alkalies, is converted into atropine. Therefore, the manufacturer may furnish your druggist unwittingly with bottles labled, the one atropine the other hyoscyamine, when they may be the same drug. I have recently been impressed by the very wide variations in the returning range of accommodation when compared with the most carefully conducted observations made twelve years ago with the same drugs. Later studies show that some of the specimens of atropine give the same results as hyoscyamine, while certain samples of hyoscyamine have the same effect as those observed from atropine in my earlier investigations.

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INSANITY IN EARLY CHILDHOOD.

By Wharton Sinkler, M.D.,

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On looking into the literature of insanity in very young children, one is struck by the scarcity of information on the subject. When we consider that insanity can often be traced back to childhood, or at any rate that some mental imperfection may exist in a child who later in life develops insanity, the importance of recognizing mental peculiarities at an early age cannot be overrated. Mental disorders, if observed early enough, may be relieved by proper care and attention.

If we exclude idiocy and imbecility, insanity in young children is a comparatively rare disorder. Moeller, quoted by Spitzka,[1] says that in 1867 he found no case of infantile insanity in the asylums of Saxony. In 1871 he found seven cases, and in 1875 there were but eight cases in institutions. In the latter year he found that in that country there were 194 cases registered who were living with their families. He does not state, however, what the ages of these children were or whether they were suffering from idiocy or some form of congenital insanity. In his own experience Spitzka states that he found four per cent. of 3,244 cases of insanity as having been insane in childhood. Twelve cases of infantile insanity have come under his observation, but he does not give the ages at which they occured, nor does he give figures as to the age at which insanity is most likely to develop in children, but he remarks "that there are nearly four times as many insane between the fifth and tenth years as among those of the first half decade of life." Folsom[2] says that of 18,422 cases registered in hospitals in Massachusetts, 366 were fifteen years and under at the time of admission. This statement also gives no exact information as to the age at which insanity is liable to occur in children. Clevenger,[3] in a paper on insanity in children, has made a thorough search throughout the literature of the subject of insanity in early life. Among the cases which he has collected are the following: One case at the age of six years, two cases at the ages of two, and seven years, three cases at the ages of eight, nine and fourteen years, eight cases between the ages of eleven and fourteen years at the Bicêtre, and several cases of pyromaniacs at ages from nine to sixteen. A case of a child reported by Greding who was brought to the Asylum at Wildham with her mother, who was then insane. This

[1] "Cyclopedia of the Diseases of Children," Vol. 4, page 1038.
[2] "System of Medicine," Pepper, Vol. 5, page 117.
[3] American Journal of Neurology and Psychiatry, 1883, Vol. 2, page 485.

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child was less than nine months old and is said to have been subject to nervous attacks from birth. She had an attack of mania during which she displayed great violence and destructiveness and died when eighteen months old. This is the earliest case on record He also cites a case aged five years, another case of a girl aged four years, and a girl of three years, who had various forms of hallucinations and paroxysms of fury alternating with depression. He also quotes a number of other cases between the ages of eight and fourteen years.

Clevenger states that there have been admitted to the Cook County Asylum, Chicago, during the past twenty years, twenty one children of seventeen years and under. The youngest of these was a boy of six, suffering from epileptic insanity, who "fights, cries and requires restraint." He also has hallucinations. The child had been an epileptic since one year of age, and the mother seems to be "indifferently balanced."

It will be seen, then, that while insanity in children is comparatively rare, yet there have been a sufficient number of cases to make it a subject available for study.

The causes of insanity in children, excluding those cases of congenital origin, and idiocy, are numerous. Exposure to the sun has been mentioned as a frequent cause, and one case has been reported where a child became insane from being allowed to sleep with his head exposed to a hot stove. Injuries of peripheral nerves, ear and throat diseases and dyspepsia have been given as causes of mental disturbances in children. Ascarides and the Oxyuris are occasionally the source of acute maniacal attacks. Spitzka, however, thinks that the mode in which the oxyuris causes mental diseases is by first producing so much rectal irritation that this leads to self abuse, and that masturbation is the actual cause of insanity and not the seat worms. This author believes that a large proportion of the cases of insanity in children which are met with are the results of self abuse. This opinion does not accord with that of other writers, Clevenger, for example, who states that "Onanism is to be considered as the effect of a neuropathic condition rather than as a cause of the same." A number of cases of infantile insanity follow acute diseases, especially the exanthems and typhoid fever. These attacks, however, are generally transient.

Insanity following measles has been reported quite frequently. Among others, M. J. Madigan[1] gives two cases, one in a lad of sixteen with no insane heredity. During convalescence from an attack of measles he awakened suddenly from sleep screaming. He had acute mania with hallucinations, and became so violent that he had to be sent to an asylum. He recovered in three months. This writer also quotes Kra-

[1] American Journal of Neurology and Psychiatry, 1883, Vol. 2, page 207.

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pelin, who says that insanity following measles occurs very often in early childhood. He gives three cases. Spitzka cites a case, a child nine years old, with an attack of insanity after scarlatina.

Fright is one of the most common causes of mental disturbance in children, a sudden alarm from a great noise, seeing an intoxicated man, or the appearance of a person dressed up in some unusual costume, hearing ghost stories, etc., are frequent causes of acute attacks of insanity in children. Mental disorders are common in children who are suffering from organic diseases of the heart.

There is a condition not infrequently met with in children known as pavor nocturnus, that is, when a child has been once awakened out of sleep by fright or by a sudden noise, he has a reproduction of the alarm in dreams on succeeding nights. Night terrors are a form of mental disturbance, and while they often depend on indigestion, in many cases are the result of morbid cerebral action.

A good example of pavor nocturnus is seen in the following case: Mabel K., age 9 years, born in England; school girl. Father and mother healthy and the parents of eleven children, eight of whom died at or shortly after birth. This child has always been healthy and has had no diseases except scarlet fever one year ago. About a year ago she fell from a second story window, at which she had been sleeping a few minutes before, and it is not known how the accident occurred; she probably fell on her face and the front part of her body, as her chin was cut open and her knees and hands were bruised. There were no bruises on the body and head. She was unconscious for an hour. About two months after the accident she began to awaken in the night, saying that she saw things in the room which frightened her. During the day she was easily frightened. These attacks have occurred about three times a month. Recently, one night her mother was watching her when she attempted to spring from her bed, apparently still asleep, and would have done so had she not been restrained. Her mental condition has always been good and she has stood well in her classes at school; she has always been restless in sleep. She has now slight clonic movements of the hands and legs, which her mother has never noticed. Her hands are cyanosed and the knee jerks are exaggerated. She was ordered bromide of potassium three times a day; a week later it was reported that she had no attack and was well and cheerful.

It is needless to say that children with a neurotic family history are much more liable to mental disturbances, from the causes above cited, than those with good family history. A large number of the cases of infantile insanity met with will be found to have parents who have been insane or inebriate.

The following cases have come under my observation in my clinic at the Infirmary for Nervous Diseases:

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CASE I.—*Insanity Following Epilepsy.*—Mabel P., aged 5 years. Is the youngest of three children; the others are fairly well. Her mother died in confinement and the father is a healthy and vigorous man. At the age of three and one-half years she had an epileptic fit; she had the second attack nine months later; the third attack eight months later. These are the only attacks which have been recorded. They were all severe in character. She has had no petit mal. She has now marked evidences of mental disturbance; she is extremely troublesome at home and is very restless, running and jumping continually. She swears and does everything bad that she can. She cannot be taught her letters or anything else. She talks and sings a great deal and is very noisy. In the clinic room she is running about taking up anything she can lay hands on and attempts to destroy it. Her general health is excellent and she never complains of pain. She was ordered bromide of sodium, five grs. three times a day. April 2, 1888, four months after her first visit, it was reported that she had no attacks and her mind is improving; at times she behaves foolishly, but her memory is better and is more manageable. May 7, she had an epileptic attack; there were no general convulsive movements, but she became unconscious and then slept for ten or fifteen minutes, following this she was apparently as well as before. This child was under observation for nearly two years, during which time she had attacks of epilepsy once in two or three months and had frequent attacks of what might be called acute mania. The attacks of mental excitement did not bear any direct relation to the epileptic seizures. On one occasion she had no attack for four months, and then she had a violent attack of mania, in which she was very much excited and seized a small kitten and killed it. In this child there were no evidences of genital irritation or rectal disease, and it was asserted by her friends that she did not masturbate. She died about the age of seven years in a convulsion.

CASE II.—Hattie M., aged three years and one month. Brought to Infirmary for Nervous Diseases July, 1891. Parents are both healthy. She has two sisters living. Has no hereditary history of insanity, fits, or any other form of nervous disease. She was born at full time, instruments were not used and the labor was not difficult. Her health was good at birth. She was bottle-fed. Never had convulsions or any serious illness.

The present trouble began about six months ago when she was two and one-half years old. She was sitting on the steps of her home one evening and became very much frightened by some riotous men in the street. She had a violent screaming attack and was in a very much excited and alarmed condition all night. She has continued from this time in an unruly and excitable state. She cannot be left

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with other children because she will injure them, and has often tried to hurt her baby sister. She bites and tears her clothing. She has become very filthy in her habits and disobedient. On examination she was found to be in good physical condition, although rather thin. Her teeth are good, but she is just cutting the third upper molars. The shape of her head is normal and her circulation good. She slobbers continually and has a vacant and imbecile expression. She is exceedingly restless and frequently bursts out crying without any cause. Sometimes she will scream and laugh loudly without provocation. She talks very little and makes no attempt to answer questions. She repeats continually the words, "baby had a book," but cannot be induced to say anything else. Previous to this trouble she talked as well as any child of her age and was as intelligent as most children. She is very mischievous and very destructive. Her appetite is voracious; it seems as if she cannot get enough to eat. It is difficult to get her to sleep at night. She is often awake and restless until a late hour, but once asleep she will not awaken until late in the morning. She has no history of a fall, nor are there any signs of injury or malformation about the head. The knee-jerks are normal. She was ordered:

℞. Sodii bromidi.....grs. viiss.
Fl. ext. conii.....gtt. ii.
Three times a day.

August 31, 1891.—Condition is about the same. Still very restless and if, anything, more excitable. She is in perpetual motion and will tear or injure anything she can get her hands upon. Bromide increased to ten grs., three times a day and conium to ten drops.

September 28.—The child has been better since last note. She shows this by being more obedient and has kissed the baby. She was formerly dangerous to the baby and tried to hurt her. She has not tried to bite anyone for two weeks.

October 12.—She has been much better until yesterday, when she had a violent attack. She was now ordered:

℞. Sulphate of morphia.....gr. 1-64
Three times a day.

Her appetite is still large, and although sleeping better she still does not get to sleep until late at night.

October 26.—She has been very much better since last note until yesterday, when she had another attack of excitement and was difficult to manage, but on the whole is generally better, more tractable and less excited. The morphia was continued.

November 23.—Child is better, but the appetite being poor the morphia was discontinued.

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December 21.—After the discontinuance of the morphia the child became more excited and more difficult to manage; it has therefore been renewed. Some evidences of lumbricoids having been seen the child was ordered santonine.

January 4, 1892.—Large quantities of lumbricoids have been passed, and since the passage of the worms the child has been much better in every way. Besides the lumbricoids a large ball of ascarides was passed. There is no longer any rectal irritation. She was now ordered:

℞. Sodii bromidi.....grs. v.
Twice a day.

January 18.—She is very much quieter in every way. She answers questions, does not try to tear her clothing and is not rude or violent in her behavior. She is obedient at home and sleeps well all night. She is pale and thin and seems restless and indifferent about her surroundings. She was ordered:

℞. Ferrated elixir of cinchona.....ʒ ss.
Three times a day.

The bromides were stopped.

October 10, 1892.—The child was brought to the clinic to-day after an interval of several months. The father says she has been very well all summer, that she seems thoroughly natural and sane. Her habits are perfectly good. She is cleanly and attends to the calls of nature. Her appetite is good and she sleeps well. Her memory is much better; in fact she seems improved in every way. However she is still somewhat excitable and is easily irritated. Her physical condition is good and she appears strong and active.

In this case the exciting cause of the attack was evidently the fright which she received. Her father says that previous to this she was not unduly excitable or nervous. The presence of the lumbricoids and ascarides may have produced some influence on the condition of the child, but the evidences of rectal irritation were not manifested until the patient had been under observation for over two months and had already improved very greatly in her mental condition.

Mr. E. H. Greeves,[1] reports a case somewhat similar to the above.

Girl, aged 5 years; father an inebriate and one sister nervous. Was once very much "frightened by an earwig having run over her." One night while in bed a ray of light fell upon her through a crack between the shutters. The child became immediatly excited; temperature 100° to 102°. There were hallucinations and delusions of persecution. She bit, scratched and screamed. She was given potassii bromidi, grs. lxxx, and chloral, grs. xl, in twenty-four hours, with little effect. Hyoscyamine, gr. 1-30 quieted her. She was cured in two months.

[1] Lancet, London, 1884, Vol. II., page 824.

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CASE III.—Matilda J., aged 3 years, was brought to the Infirmary for Nervous Diseases at the Clinic of Dr. M. J. Lewis, October 19, 1892. Family history: the father is living and well, the mother died of phthisis; one brother died at six months of age of marasmus. There is no history of insanity or of intemperance in parents. The mother was a nervous woman who, it is said, could be easily worked up into a nervous state. The patient was born at term after a normal labor, no instruments being used; she was breast-fed until two and a half years of age; she walked and talked at the usual age and appeared perfectly healthy until after the death of her mother. When she was two years and ten months old she began to be restless at night and was frequently given paregoric to quiet her. Following this nocturnal restlessness there developed spells of crying without any apparent reason and lasting about an hour. After these attacks she articulated imperfectly for a few minutes. She began to be dirty in her habits, would soil her clothing with her discharges and was found often to eat her feces. Present condition: the patient is a wild-looking child, with active brown eyes and projecting forehead; her physical condition is good and there are no signs of rachitis. She walks and talks well; she is destructive, tearing her clothing into shreds, destroying pieces of paper and anything she can lay hands upon. She sleeps very badly, and is sometimes found at night talking to imaginary companions. During one of her crying spells she was asked why she was crying and replied that she saw her mother in the hallway; she has a ravinous appetite, is constipated and the stools are black; the vulva and vagina are red and irritated, and the clitoris is erectile. The child is frequently seen to masturbate; she has occasional attacks of partial unconsciousness, which are possibly petitmal.

Scherpf, quoted by Clevenger, divides the insanities of childhood into three groups: monomania, impulsive, and moral insanity; the last he believes is more frequent than the acute psychoses, such as mania, melancholia and katatonia. He does not believe that systematized delusions are common among children. Surgeon-Major Hume[1] reports a case of a Mohammedan boy, two and a half years of age, who caught cold during an attack of malarial fever; previous to this he was intelligent, talked well, and was neat and orderly; afterwards became restless, moving incessantly, biting pieces of paper and other rubbish, and mischievous in other ways, destroying boxes, etc. He could not say any words distinctly. Two weeks later, under bromides, he began to improve. August Schuburt[2] reports a case of mania in a girl three and one-half years of age; she was well built, with good health pre-

[1] Indian Medical Gazette, 1888.
[2] Berlin. Medicinische Central. Zeitung, 1839.

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viously; she had a sudden attack of headache which was treated by bleeding, cold applications and mercury. The next day she was well excepting insomnia and a poor appetite. The following day she had a fit which lasted two hours, and on recovering from it she showed symptoms of mania, crying and biting herself and throwing things about; this lasted thirteen weeks, and she died in a fit. Karl Tremoth[1] records six cases of infantile insanity at ages varying from seven to seventeen years. In five of these there was an hereditary history of insanity. This writer states that he follows Emminghaus in classing all as children up to the age of seventeen years, provided that they are childish in their ways.

PHLEGMASIA ALBA DOLENS.[2]

By Barton Cooke Hirst, M.D.,

Professor of Obstetrics, University of Pennsylvania.

Phlegmasia alba dolens is a disease which the general practitioner is pretty sure to see sometimes if only at long intervals, but as it is of infrequent occurrence in general practice, he will rarely be fortified by a large experience in its recognition and treatment. The subject, therefore, seems to me a good one for the paper that you have asked me to read, and I am inclined to it for the additional reason that I have seen seven of these cases in the last six years, a larger experience very likely than would fall to the lot of any one but a professed specialist in obstetrics, for while phlegmasia may occur aside from the child-bearing process altogether, as after typhoid fever or an abdominal section, it is by far most frequently met with in the puerperium.

I might write a very extensive, and, I daresay, very tiresome, article on the disease if I considered it in detail in all its aspects, as you will find it treated in any good text-book on obstetrics; but I think our time may be more profitably employed by studying the salient features of the cases that I shall report, noting in what they agree with or differ from the usual course of the disease, and marking with most attention the important points of diagnosis and treatment; thus making my experience yours. The most prominent diagnostic sign to me, before the actual swelling of the leg which sets all doubt

[1] Münchener Medicinische Wochenschrift, September, 1891.

[2] Read before the H. C. Wood Medical Society, November 16, 1892.

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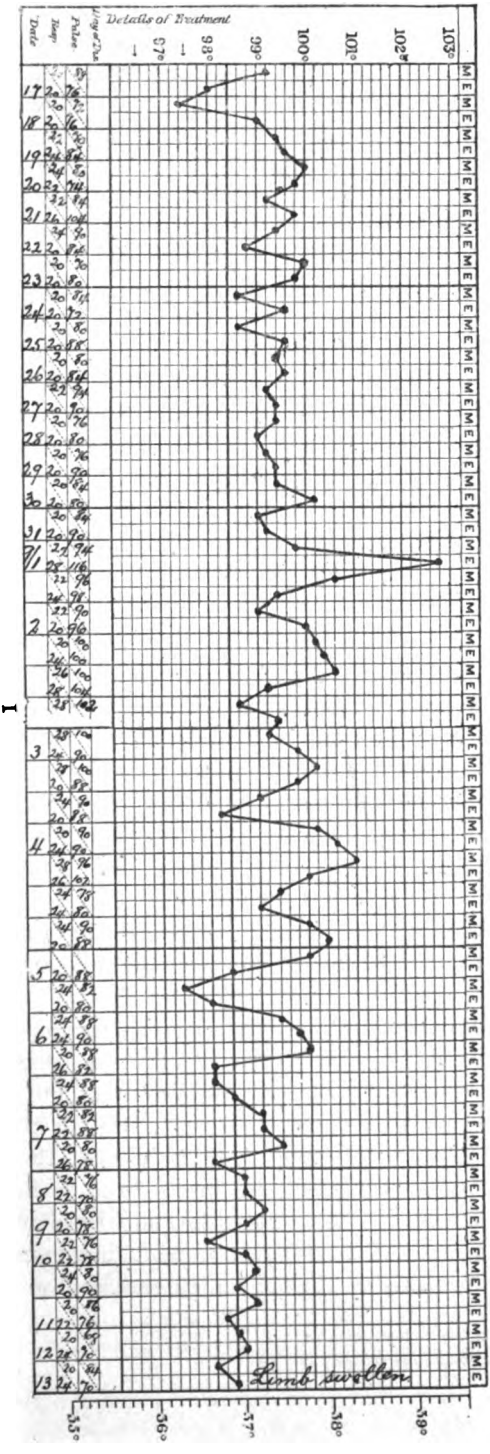

at rest, is a fever appearing shortly or immediately after labor, of a low grade, but associated with other symptoms of sepsis out of all proportion to the height of the temperature. The pulse is rapid, there is profuse sweating, a dusky flush is on the cheeks and an indescribable look of anxiety or restlessness on the face, although in response to inquiries the patient replies with what seems an assumed briskness and cheerfulness that she feels well. There is certainly no pain, and if worried by the general condition of the woman, as has always been my case, the physician makes a vaginal examination, he finds no local manifestation of inflammation. The uterus is movable, there are no masses in its neighborhood, and the cervix and vagina are healthy. This state of affairs continues some ten or twelve days or possibly a month before the leg begins to swell from the ankle up, and the course of the femoral vein is marked by a line of inflammatory redness. The first chart represents a typical case of the kind. This clinical history is in consonance with what one should expect from the usual cause of phlegmasia, which is a mild septic inflammation of the blood-vessel walls in the uterus and a consequent

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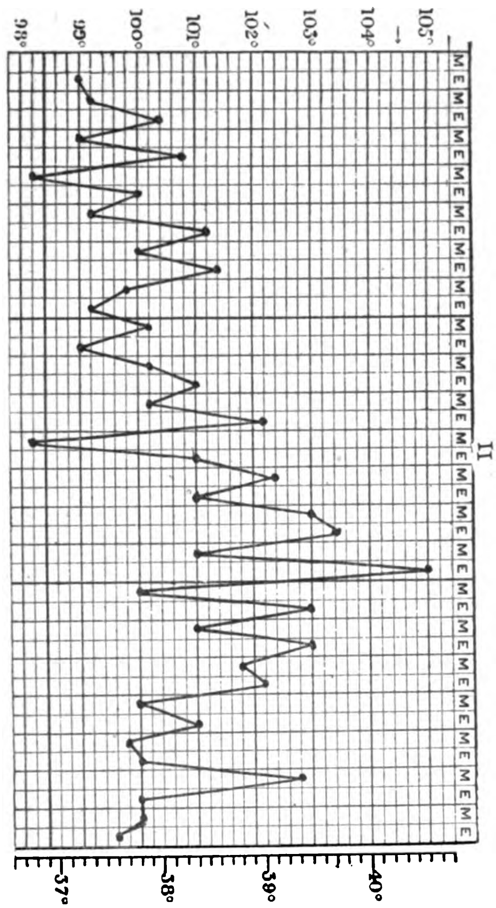

clotting of the blood within. Or perhaps there is a primary infection of the clot contained in the veins and an extension of the thrombosis as a barrier, often ineffectual, against the farther progress of the invading microbes. It is claimed that the thrombosis of phlegmasia is the result of purely mechanical pressure and of the added tendency of the blood in the child-bearing woman to clot, and this claim must be allowed in those exceptional cases of phlegmasia before labor. But all the symptoms in the vast majority of cases go to prove the accuracy of the first statement in regard to the etiology, although it must be admitted that the prolonged pressure of the head upon the uterine veins, in case the head is detained above the brim, does play a subordinate causative rôle by reducing the vitality of the bloodvessel walls and thus rendering them an easier prey to infection. This was so, I am sure, in the girl whose temperature is reproduced here (No. II). She was delivered by symphysiotomy after a hard but ineffectual labor of two days, during the whole of which time the head was jammed tight upon the pelvic brim. You will note also in this chart an exception to the rule in phlegmasia. The temperature continued high long after the swelling of the leg appeared, and the latter subsided rather more quickly than the former. I need scarcely remind you that it is the rule in these cases for the fever to subside before or shortly after the edema develops, and that the latter continues for a long time after all general symptoms have disappeared. Indeed, the majority of these cases suffer from imperfect circulation in the affected limb for years after the attack, and in a small proportion the venous stagnation leads to marked

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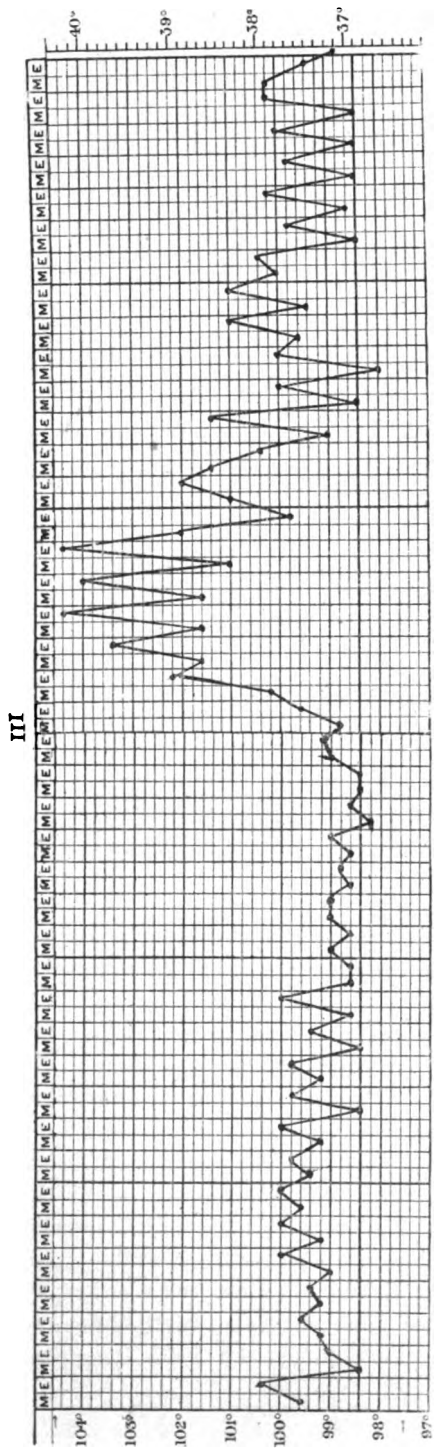

III

There were seven other exacerbations of fever to a great height, the fever lasting from March 7th, the day of delivery, until January 1st, with occasional complete remissions for two or three days.

thickening of the connective tissue, and even to elephantiasis. In a few the compensatory circulation is so imperfectly established that gangrene results and amputation becomes necessary. In the next chart that I present (III) you will see a more striking illustration of the anomaly already noted. Here the phlegmasia was a mere incident in a prolonged attack of septic phlebitis, appearing late in the disease, soon disappearing and leaving the fever and other symptoms of general septicemia unabated in severity. This girl was desperately ill for many weeks, but finally recovered, as have all my cases of phlegmasia.

My treatment is easily described. Absolute rest of the affected limb, so as to prevent the detachment of an embolus; as much easily assimilated food, chiefly milk, as the patient can digest, and, in bad cases, as much whiskey as she can stand. One of my patients took six ounces a day for more than three weeks, or about five quarts in her illness, and another, the last described, consumed enormous quantities for a period of almost three months, taking for a time over a pint a day.

You will see noted on the next chart presented (No.

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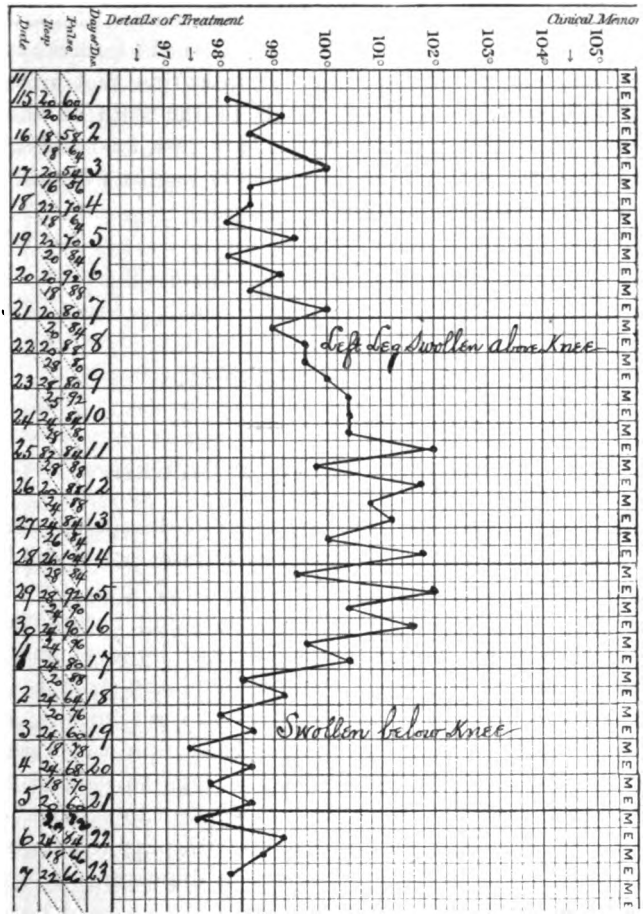
IV) an uncommon occurrence. On the eighth day, after the usual premonitory symptoms, the thigh began to swell from above downward. Eleven days afterward the leg began to swell at the ankle and thence upward, until finally the whole limb presented the typical appearance of phlegmasia, or milk leg, dead white in appearance, like all very edematous tissues covered by skin, and very large. This case began as an infectious inflammation of the connective tissue of the thigh,



IV

spreading from the pelvis, but ended by a thrombosis in the femoral vein, the walls of which were at length involved in the inflammation. In another of my cases the inflammation remained confined to the connective tissue of the thigh, and ended, as this variety of phlegmasia is apt to end, in extensive suppuration, so that I was obliged to make

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a number of incisions from the buttock almost to the knee joint, passing drainage-tubes from one opening to another. Suppuration is sometimes seen in the phlebitic thrombotic phlegmasia, too, but it is not so common. I know of a case of this kind in charge of a medical friend, in which a large abscess formed in the popliteal space after an abortion. Suppuration has been noted at other points also along the course of the femoral vein, and in one of my cases there seemed for a time a certainty of abscess formation in the calf of the leg, but the inflammation that was particularly aggravated at that point at length subsided without suppuration. If pus is formed, it must, of course, be evacuated, and any other complication that arises must be treated appropriately; but if one holds in the main to the cardinal principles of treatment already mentioned—rest, food and stimulation —I believe his mortality will be surprisingly low in a disease as severe and alarming as phlegmasia often is.

MEMORANDUM.

THREE CASES OF PURPURA.

CASE I.—Frank R., laborer, 50 years old, dissipated, was brought home drunk from a saloon where a few days before, a child had died suddenly of what was supposed to be spotted fever (cerebro-spinal meningitis). He was taken the following morning, Saturday, February 27, 1892, 2 A.M., with a severe chill, followed by fever and delirium. I was called the following day, when I found the patient apparently very ill; temperature, 103° F., pulse over 120 per minute, weak and compressible; there was extreme pain and the skin was hyperesthetic; right elbow joint red and slightly swollen; legs so painful and sensitive that patient would not move nor allow them to be touched. The entire body, except the face, was covered with purpuric spots, varying in size from a pin's head to over an inch in diameter, one spot nearly covering the dorsum of the tongue.

There had been delirium during the night, but the patient was rational at time of my visit. I saw him again at 9 P.M. of same day; there had been nausea, and vomiting of greenish matter; there was slight wandering delirium; temperature nearly 104° F.; ankles and feet somewhat swollen.

Monday, February 29. The temperature had fallen to 102° F.,

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pulse frequent, very compressible and irregular; there was threatened syncope when patient attempted to sit or rise up. The pain and hyperesthesia were intense. There was slight conjunctivitis of left eye; the mind was clear.

Tuesday, March 1. Temperature, 101.2° F., pulse feeble and irregular; marked tendency toward syncope if head was elevated. The heart was normal in size and position; soft systolic murmur heard over base, regarded as hemic in character. Slight delirium during night; patient rational at time of visit. There had been bleeding from the nose in the early morning, about half pint of blood being lost. The urine was high-colored, but presented neither casts nor albumin; there was no hematuria. Keratitis of left eye had developed; the conjunctiva was deeply injected; some photophobia, but little pain.

Wednesday, March 2. Temperature a little below normal; pulse over 100, but stronger and more regular. Pain in elbow-joint and arms was better; legs were still painful and hyperesthetic. The ophthalmia was worse; there was some indication of pus in anterior chamber; very little pain or photophobia; light was appreciated; otherwise there was total loss of vision in the affected eye; right eye was normal.

At no time was there any cerebral or spinal symptoms indicating meningitis; head was not retracted and could be flexed strongly on chest; pressure over muscle gave no pain; there had been neither spasm nor convulsion, no headache, no stupor, no opisthotonos. Synovitis of the right knee-joint had developed; there was marked swelling, redness and exquisite pain. From this time the general condition improved; the spots gradually faded, except when subjected to pressure, when they sloughed, leaving on the buttocks numerous shallow ulcers which quickly healed under simple cleanliness and protection. For several weeks the feet and ankles showed a marked tendency to swell whenever patient sat up. The knee remained slightly swollen and very painful, but this condition gradually yielded to repeated blisters. It is, however, stiff and the patient is obliged to use a cane. The acute inflammatory symptoms of the eye subsided, but the product of the inflammation is apparently permanent and vision lost.

The treatment consisted in a liberal diet of easily digested food. Tr. chloride iron in fifteen drop doses four times daily; salol and morphia for pain and articular symptoms; atropia and boric acid in solution were used locally in the eye. The bichloride of mercury was given internally in small doses. Hot applications were made to knee in acute stage and small blisters, repeated, later.

This case is interesting, first, in its diagnosis. The somewhat confusing history, the hyperesthesia, irregular fever and delirium led the physician called before me to make a tentative diagnosis of spotted

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fever. The after course of the case, and the total absence of cerebral or spinal symptoms showed the error. Secondly, the ophthalmia leading to complete loss of vision in the eye involved is a complication I failed to find mentioned in any practice at hand. Third, to confirm the almost specific action of iron in supporting the heart and circulation.

CASE II.—Laura, stepdaughter of first patient, about 16 years old, well developed and apparently in good health, who had assisted in nursing her father, was taken suddenly about 4 A.M., March 7, with chill, nausea and vomiting; temperature 105° F.; slight delirium followed, but patient was rational at 9 A.M. The body, except the face, was covered with a rash, which at first resembled measles (which patient had had), but later looked like urticaria. Both knees were hot, swollen and extremely painful; skin hyperesthetic; on the back low down and on the legs from knees down there were numerous purpuric spots of variable size, the largest nearly one-half inch in diameter. The course of the case was favorable, the temperature rapidly fell, so that at the end of three or four days it was normal. The knees gradually improved, the pain being the last to leave. There was some tendency to syncope during first few days whenever patient attempted to arise. At the end of ten days recovery was complete, except that the patient was weak and easily tired on exertion. A liberal diet; tr. chloride iron, ten drops, four times daily; phenacetine and salol for the pain and fever constituted the treatment.

A point of interest in this case is the question of a contagious factor. The girl was apparently in robust health before the attack; she assisted in nursing her father, and at the end of a week was seized with the same disease.

CASE III.—Eddie M., boy, age 15 years, rather frail and of only average health, worked in a glass factory as "snapping boy," his work subjecting him to frequent extremes of heat and cold. His parents were extremely poor and he got a very scanty supply of coarse food, chiefly salt pork, and but few vegetables. Since the later part of April he has been going with the other boys at noon to bathe in the creek. After one of these bathing trips on May 6 he was suddenly taken with a chill, followed, when I saw him; by a rapidly developing pyrexia; temperature 106° F. Two hours after the chill there was wandering delirium, a rapid, feeble, intermittent pulse; breathing was easy but somewhat accelerated; breath sounds normal and no signs of pneumonic consolidation. When spoken to sharply he roused for a moment apparently rational, but almost immediately lapsed into a mumbling, more or less active delirium. The body except the face was covered with purpuric spots, the majority over an

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inch in diameter. He complained of pain in the arms, but there was no swelling of the joints, no retraction of head, no convulsion, only slight hyperesthesia. Whisky and ammonia with digitalis in hot water were given and ordered repeated every hour or two as needed to combat the failing heart. I saw the boy again in the evening, the temperature had fallen to 103° F., the delirium was less active and he was rational when roused; the extremities were cold and the pulse weak and labored. Strychnia and atropia were given hypodermically. Stimulants were continued. Hot bottles and irons were ordered and the patient wrapped in hot blankets. The following morning I found him unconscious, apparently in collapse, in which he died a few hours later after an illness of little more than twenty-four hours.

This case comes under the division of purpura fulminans. It is interesting because of its rarity and the possible bearing upon the differential diagnosis between this type of purpura and rapidly-fatal cases of spotted fever, a question, perhaps, too often decided by the mere presence of "spots"—purpura—rather than the positive presence of symptoms of cerebral or spinal meningitis.

BRIDGETON, N. J. HAMILTON MAILLY, M.D.

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EDITORIAL.

LATERAL CURVATURE OF THE SPINE IN POTT'S DISEASE.

ALTHOUGH the occurrence of lateral deviation of the spine in Pott's disease has long been recognized, it does not seem to have received the consideration which its importance deserves. It has been the too general custom to look upon angular curvature—kyphosis—as the essential deformity of spinal caries. This subject is of interest principally from a diagnostic standpoint. The immense importance of recognizing spinal caries in its earliest stages gives to lateral deviation a much more important rôle than text-books accord it. Many careful orthopedic surgeons state that lateral deformity is a very common, in fact frequently one of the earliest symptoms of Pott's disease, especially in the dorsal and lumbar regions. This should teach us to regard with suspicion what seems to be the beginning of a lateral curvature. It is not probable that scoliosis would ever be mistaken for kyphosis, but the latter may so closely simulate the former as to easily mislead one who does not keep this fact in mind. The exact cause of this lateral deformity is still a matter of some doubt. It is believed by many authors to be due, particularly in the earlier stages, to muscular spasm; in this particular being analagous to the rigidity so commonly observed in coxitis. This view is a very reasonable one, given the condition of inflammation affecting one of the joints of the spine, the spinal muscles would naturally be thrown into spasm to "splint" the diseased part. As a result of the inflammation the ligaments would become weakened, and it is not difficult to understand how with weakened ligaments and muscular spasm curvature of the spine might develop before the bodies of the vertebræ or the interarticular fibrocartilages had been destroyed. In pronounced lateral curvature in the late stages of spinal caries, the destructive process has affected one lateral aspect more than the other, in this respect resembling angular curvature.

The diagnosis between a beginning scoliosis and an incipient caries will sometimes be very difficult to make. In such cases a decision may be arrived at by attention to the following: The family history should be carefully inquired into with reference to any tuberculous or strumous tendencies. The state of the health of the patient should also be determined. Now, that caries is known to be a tuberculous process, a consumptive family history would have an important bearing on the case. If the patient's health had been failing, if he was pale and

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emaciated, the probability of the process being tuberculous would be increased. Again, if there was an elevation of temperature and an increase in the pulse rate, it would indicate an inflammatory process which would point to caries if there was no other cause for these changes. One of the most valuable signs of Pott's disease is rigidity. This is due to spasm of the spinal muscles; this symptom is absent in scoliosis. Pressure on the inflamed spine is painful; in simple curvature pain is absent. In Pott's disease the course of the case is apt to be much more rapid than in simple curvature. In scoliosis there is torsion, while in caries there is inclination of the whole trunk. Slight degrees of deformity are best seen from in front.

THE ACTION OF DIGITALIS IN MITRAL REGURGITATION.

COMPENSATION in mitral insufficiency is effected by hypertrophy of the left auricle, right ventricle, and left ventricle; the left auricle enlarges because it is compelled to drive from its chamber not only the blood received from the lungs, but also an accession received through the leak at the mitral orifice. When the auricle yields to the strain, the blood tends to accumulate in the lungs, and to overcome the pulmonary obstruction thus produced, the right ventricle becomes hypertrophied. The left auricle reinforced by the hypertrophied right ventricle now drives an excessive amount of blood into the left ventricle which also becomes hypertrophied in its effort to completely empty itself.

The action of digitalis on the heart is twofold: it strengthens the systolic contraction and prolongs the diastole. It is generally conceded that the drug does good in mitral regurgitation by strengthening the right ventricle and thereby indirectly supporting the left auricle, and also by increasing the force with which the blood is driven from the left ventricle. It is claimed that the aortic orifice being much larger than the opening resulting from the imperfect closure of the mitral valves, the friction will be less, and that proportionately more blood will flow into the aorta than back into the auricle.

But the good effects of digitalis are often observed even where aortic obstruction is associated with extreme mitral regurgitation, and in some cases, it would appear from the subsequent examination of the heart, that the aortic lesion must have materially increased the friction at that valve. In view of the striking results it is probable that digitalis acts in other ways. In the experiments of Ludwig and Hesse it

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was ascertained that the closure of the mitral orifice depended not alone on the action of the valve-curtains but also upon the contraction of the ventricle which reduces the size of the orifice and thus makes perfect coaptation of the valves possible. It is well known that soft systolic murmurs often appear at the apex during the course of continued fevers, and subsequently disappear when the disease is over or when the heart is strengthened by stimulants. It is probable that such murmurs result from weak ventricular contractions causing imperfect closure of the valves.

It would appear, therefore, that digitalis acts favorably in mitral regurgitation, not only by increasing the force with which the blood is driven from the ventricle, but also by securing a more perfect closure of the mitral orifice through a more vigorous contraction of the muscles surrounding that orifice. The disappearance of some mitral murmurs during the administration of digitalis can readily be explained on this basis.

The prolongation of diastole which digitalis induces is also productive of good in mitral regurgitation since it gives the over-distended auricle a longer time to empty its contents into the ventricle.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

CONTRIBUTION TO THE STUDY OF ASYSTOLE.

BARD (*Gazette Hebdomadaire de Medicine et de Chirurgie*, August 6, 1892), after reviewing the different theories of asystole which view this condition as having a purely mechanical cause, suggests as a more likely cause an inflammation more or less active. First, his observations, which have been both pathological and clinical, view the lesions of endocarditis and chronic interstitial myocarditis which cause the asystole, not as mere lesions of an inflammation which has passed away, but that they are the results of a veritable inflammation which is peristent and chronic, with exacerbations more or less acute. Second, that an asystole with an inflammatory cause can produce all the signs of insufficiency before the mechanical forces have time to act. The author considers the acceptance of this theory of importance from diagnostic and prognostic points of view as well as from a therapeutic standpoint. In each case the physician will have to determine the part which is mechanical and the part which is inflammatory. With an inflammatory cause in mind one cannot be content merely with determining the seat of the lesion as is ordinarily done, but to determine the kind and degree of anatomical lesion. Though the latter point is more difficult to determine it is none the less important. The tolerance of a heart to an organic lesion depends more upon the manner of involvement than upon the situation or degree of the deformity of the orifice which it causes, or of the mechanical troubles which it engenders. The therapeutical indications differ also with the view as to whether the lesion is cicatricial or active; and whether the asystole which menaces or which is present is due to a mechanical or inflammatory cause and will demand the use of revulsive and antiphlogistic agents instead of digitalis and its succedanea which are now universally used.

DIABETES MELLITUS.

LENNÉ (*Münchener medicinische Wochenschrift*, August 23, 1892), distinguishes as a severe attack of diabetes, one in which there is no effect upon, or marked diminutions of, the excretions of sugar after a special diet, lasting three days, or when the patellar reflex disappears without any other reason than the diabetes. The amount of sugar excreted, the degree of thirst, loss of flesh, etc., serve as points for differential diagnosis, but so far as the intensity of the disease is concerned, he considers his first statement sufficient. He considers the alkaline waters as the most effective medications. They affect the subjective symptoms of the patient sooner than any other medicine. As early as the first week the sweet taste, thirst and weakness of the limbs are lessened. He uses as adjuvants to the treatment opium, belladonna, sozoiodol, methyl blue and salicylate of bismuth.

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Spinal Hemiplegia Following Influenza.

Eulenburg (*Deutsche medicinsche Wochenschrift*, September 22, 1892), reports the following case: Ida B., aged 17 years, who was previously well, was attacked with influenza in November, 1891. After the influenza the patient complained of pain between the shoulder blades, as well as a burning sensation in the right arm and shoulder. In the latter part of January, 1892, she complained of a heaviness and weakness in the right leg. Suddenly, on the night of January 26, a sudden total loss of power of the *right* leg appeared, with paralysis of the bladder and rectum, and a total anesthesia of the *left* half of the body below the shoulder. There was a weakness of the right arm, but there was no actual paralysis. There was complete anesthesia of the ulnar half of the left forearm. The right pupil was smaller than the left, the face and ear on the right side felt warmer than the left. There were hyperesthesia and exaggerated knee-jerk on the right side. Electrical examination showed both faradic and Franklin's reaction of degeneration in the extensor longus pollicis of the affected (right) leg. Upon analyzing the symptoms, the author concludes that the lesion is on a level with the seventh cervical segment in the right side of the cord.

Intra-Thoracic Auscultation.

Richardson (the *Lancet*, Nov. 5, 1892) relates that while using a stomach tube in a patient to determine the presence or absence of stricture, it suddenly occurred to him to auscult the esophagus. He sliced off the end of the exploring tube and slipped over this the terminal end of the double stethoscope. As the stomach tube passed down, he could hear the soft friction of the tube against the walls of the esophagus; the sound was uniform throughout and he was made quite sure there was no special constriction. When the tube was passed into the stomach, there was a gentle seething sound, as of air being agitated in a thickish fluid, and at times a gurgling sound with another sound probably due to the muscular action of the stomach. As there were no openings in the tube except at the extreme ends, he could hear only the sounds produced opposite the lower opening. He withdrew the tube until the lower end was in that part of the esophagus, which is in immediate proximity to the heart. By ordinary auscultation of the heart he had failed to detect clearly the two sounds, but with the stomach tube in this position they were as clear as they would have been from a normal heart. They were duller than the sounds heard in ordinary auscultations, but were singularly loud and distinct. By moving the tube up and down he could get the second sound separately from the first and *vice versa*. When the end of the tube was midway between the two sounds there was not so much difference between them as an ordinary auscultation. On withdrawing the tube he could not hear any vesicular murmur as he passed the bronchi.

The author has thus instituted a new method of research. *Auscultation from within the body.* He suggests that it may be a useful mode of exploring the esophagus, and scirrhus affecting the pylorus of the stomach should be easily diagnosed by auscultation. Pulsating abdominal tumors should be more easily diagnosed in this manner than by ordinary methods. It may be used to determine whether life is extinct by its transmitting to the ear heart sounds which are inaudible by ordinary auscultation. He suggests that in cases of collapse from chloroform hot water can be at once injected into the stomach, or if one had become expert a faradic current could be directed against the right side of the heart. The best tube to be used is a large sized esophageal tube with a lateral opening at the extremity. Tubes without openings are useless. The writer asks for investigations of the subject in order to more fully prove its usefulness.

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Treatment of Typhoid Fever with Thallin.

Schmid (*Correspondenz-Blatt*, September, 1892), reports twenty cases of typhoid fever treated with the above drug; they were all either moderately severe or very severe cases. There were fifteen men and five women, ranging from 16 to 45 years of age. The treatment was as follows: The diet was chiefly milk, varied, however, with beef broth, eggs and alcohol. The amount of the alcohol varied with the individual case. A number of the patients had been given an initial dose of calomel. In some of the patients thallin was begun on the day of entrance; in others, not until the second or third day, because the diagnosis was uncertain. The sulphate of thallin was used in a one to two per cent. watery solution. During the day from six in the morning until nine at night, the drug was given hourly. In the night it was given every two or three hours. The dose in the beginning was one and a half to two and a half grains. The temperature was taken every hour; after two to four hours the dose was increased at each dose one-forth to one-half a grain, until the temperature reached the normal point, which usually occurred in from three to four days. The dose was continued and only diminished to from one to one and a half grains, when the temperature continued at normal for a considerable period. If the temperature became markedly subnormal, the drug was discontinued. The smallest single maximum dose that was used was one and a half grains. The largest was six grains. The greatest amount given in twenty-four hours was one hundred and twenty-four grains. The greatest total amount given was about seven and a half ounces in twenty-three days. The shortest time of the use of the drug was five days, the longest twenty-nine days. Of the *twenty* patients *two* died. One of a very severe attack of the disease, another of perforation of the intestine. The effect of the drug used in this way was marked upon the temperature. The fever disappeared in from one to three days. Usually, the patient was free from fever from six to sixteen hours. It has been said that thallin only lowered the surface temperature, but rectal measurements in these cases gave but two-fifths of a degree difference. The effect on the heart and kidneys was negative. He concludes that the treatment by thallin is as useful as cold baths, especially in the height of the disease. No bad results were noticed.

Therapy of Tetanus.

Albertoni (*Therapeutische Monatshefte*, Sept., 1892) has collected 176 cases of tetanus treated in various ways, with 139 recoveries; 78.9 per cent. recoveries, 21 per cent. deaths. From these statistics he concludes, first that tetanus is not so fatal as is generally supposed. Second, that it recovers after various methods of treatment, and therefore probably tends naturally to recovery. The division of tetanus into acute and chronic cases is ancient. Since Hippocrates it has been well understood that after a case had run a course of a week, the chances of recovery increased. The latest treatment is by the blood serum of animals which have been rendered immune. In 1890, Behring and Kitasoto in experimenting with iodtrichloride caused rabbits to become immune to tetanus. They found that the serum of such animals had the power of causing immunity in mice. In a case of tetanus in man, reported by Finotti, he ascribed the recovery to the use of this antitoxin because no other medication had been used, but he stated that an iodoform dressing had been used on the wound; this latter treatment has been considered almost specific by some writers. Chloral has given the greatest relative recovery, it is best given in large doses. Application of ice to the spinal column is theoretically correct and has given good results.

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Tropacocaine.

Chadbourne (*Therapeutische Monatshefte*, September, 1892). The author quotes Geissel as having isolated this new alkoloid from the small leaved coca plant which is found in Java. It is a benzoyl-pseudo tropein. The hydrochloride is easily soluble in water, and is the one used in the author's experiments.

Local Action.—If a one per cent. solution be put in the eye of a frog, complete anesthesia will be produced in a few seconds, or at least a minute. The action is just as marked in the eyes of rabbits, varying in intensity and rapidity of action with the degree of concentration. Comparing it with cocaine, he found that weaker solutions of tropacocaine produced anesthesia, and that if solutions of equal strength of the two substance were used, the tropacocaine caused anesthesia much more quickly than did the cocaine, and its effects lasted longer. Mydriasis was observed in some cases, but was not constant. Subcutaneous injection of the solution caused local anesthesia, the anesthesia appeared sooner than with cocaine, lasted longer and spread itself over a greater surface. The author has proven, by action on frogs, rabbits and dogs, that the physiological action of the drug is almost exactly similar to cocaine, with the important difference that tropacocaine is much less poisonous than cocaine—cocaine being at least twice as poisonous as tropacocaine. Schweigger has used it in his eye clinic, and has found that a three per cent. solution caused about the same grade of anesthesia as the same solution of cocaine; it lasted a shorter time, but can be continued by fresh instillations of the drug. Sometimes a slight mydriasis was caused. Ischemia never occured. A slight hyperemia sometimes followed its use. He concludes, it is quite as good in eye practice as cocaine, and in some cases better.

Dietetic Treatment of Heart Disease.

Hüschfeld (*Berliner klinische Wochenschrift*, No. 35) reports three cases of heart disease upon which he made numerous observations, proving that as the amount of food was diminished, the amount of urine increased. He quoted two cases in which slight edema of the feet took place daily and disappeared upon the food being diminished. He points out that while we should as a therapeutic measure lessen the muscular strain on the heart as much as possible, we should bear in mind that diminution of the amount of food is a second means to overcome loss of compensation. In cases where there is no edema, but only asthmatic attacks or dyspnea on exertion, decrease in the amount of food is valueless. On the other hand, increase in the amount of food always caused an increase of the troublesome symptoms. In cases of disturbance of the pulmonary circulation, the amount of food taken by the patient was always small, and here more reliance was to be placed upon medicine. However, in some cases where the food was still further reduced, the diuretics administered, had a good effect, where they had previously been valueless. He concludes his article as follows: "A decrease of food diminishes the work of the heart, and therefore in cases of loss of compensation can cause diuresis. Decrease of fluids taken cause but a slight diminution of the amount of urine excreted. In pulmonary disease a decrease of the amount of fluids taken without at the same time decrease in the amount of food is valueless. Because of rich overfeeding, with insufficient muscular activity, an undue amount of blood frequently accumulates in the vessels of the head and trunk, and may cause hypertrophy of the heart. The indications in such a condition are, first, to get rid of the undue amount of blood and secure a regulation of the amount of muscular action.

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Therapeutic Value of Sozoiodol of Mercury.

Witthauer (*Münchener medicinische Wochenschrift*, August 23, 1892) gives his experience with this drug as follows: It contains thirty-one per cent. of mercury and thirty-eight per cent. of iodine. In severe leg ulcers he has used it with the greatest success. The surface of the ulcer is first washed with soap and water and then treated as follows: An ointment is made from the following prescription:

℞. Hydrarg. Sozoiodol..... 1.
Lanolin ..... 90.
Ol. Olive..... 10.

This is spread on muslin and cut into strips the breadth of a finger. These are laid side by side over the surface of the ulcer. Over this cotton is placed and the whole covered in tightly with a bandage. It is best that the patient should be in a recumbent position. The bandage is changed when the discharge appears on the surface. In a very few days the granulations change their character and the ulcer begins to heal. If there are small spots of the ulcer which refuse to heal, then the limb is allowed to rest under a wire frame, and the surface dusted with the following powder:

℞. Hydrarg. Sozoiodol..... 1.
Talc..... 99.

This forms a dry crust under which skin formation goes on rapidly. If the patient must walk about, then the limb should be surrounded with a rubber bandage. The author has used the following prescriptions or the one above in all stages of eczema with excellent results:

℞. Zinc. Sozoiodol..... 1.
Talc. ..... 9.

In deep abscesses the powder has been used around and over the surface with excellent results. He reports one case of scrofulous disease of the scalp in which the powder was used with success after all other preparations failed. It has proved invaluable in fistulæ of any kind. In tuberculosis of the joints where there was a fistula, the following emulsion was injected in the opening:

℞. Hydrarg. Sozoiodol..... 5.
Glycerine ..... 4.
Pulv. Acaciæ..... 2.
Aq. Destil..... 44.

The fungous granulations disappeared from the wound and the fistulæ closed. It is not to be used where there is albuminuria.

Differential Diagnosis Between Rheumatoid Arthritis and Gout.

Garrod (*Lancet*, November 5, 1892), who is so eminent an authority on the above diseases, calls attention to the great mischief which arises from confounding them. The medicinal and dietetic treatment, which is proper to the one disease, may prove most injurious to the other. He thus summarizes the symptoms of gout: 1. In all cases of gout, whether articular or not, there is an excess of uric acid in the blood. 2. In all joints which have been subjected to gouty inflammation, there is a deposit of uric acid in the form of biurate of sodium, and this must be looked upon as the cause, not the result of the inflam-

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mation. 3. The inflammation which occurs around the urates causes a destructive action upon them. 4. Gout is often manifested in non-articular structures, as the skin, kidneys, bladder, throat, digestive organs, etc. 5. (*a*) Gout has a close relation to the patient's diet, especially to alcoholic beverages; (*b*) gout is much more common in men than women; (*c*) gout is a strongly hereditary disease.

The symptoms of rheumatoid arthritis are thus tabulated: 1. In rheumatoid arthritis there is no excess of uric acid in the blood. 2. Examination of joints affected with rheumatoid arthritis, fails to show any deposit of biurate of sodium. 3. In rheumatoid arthritis there is ulceration of the cartilages from the first, and the bones become entirely denuded. 4. Rheumatoid arthritis affects only the joints, there is no evidence of a morbid state of the blood. 5. There is a close connection between rheumatoid arthritis and the state of the nervous system. (6) There is no known relation between the conditions of the kidneys, skin or digestive organs and rheumatoid arthritis. 7. The joints affected are different from those affected in gout. 8. The effect of diet is much less marked than in gout; any insufficient diet increases the disease, while a supporting diet lessens it; alcoholic beverages so potent in keeping up gout have no effect on rheumatoid arthritis. 9. Females are more liable to rheumatoid arthritis than males. 10. Rheumatoid arthritis may occur at any age; gout is more common after forty years of age.

Treatment of Diphtheria with Pyoktanin.

Taube (*Deutsche medicinische Wochenschrift*, September 22, 1892), in the beginning of his article, remarks that in ninety-nine per cent. of all cases of diphtheria the tonsils are the starting point of the exudation. In the act of swallowing the tonsils do not remain stationary, but move backward and upward so that the posterior pharyngeal wall is touched by them. The tongue presses the morsel that is to be swallowed over them, the uvula and soft palate being contracted. In this way the infected lacunæ of the tonsils become the starting point of the diphtheritic exudation. He treats the cases as follows: The child at first swallows a teaspoonful of bicarbonate of soda in a tablespoonful of water. A large pencil is then dipped in a ten per cent. solution of pyoktanin, and the back of the tongue, the tonsils and the pharynx are touched with it. This brings on a severe gagging, which is useful in forcing the stain into the deep recesses of the tonsil. To prevent soiling the clothing it is protected with a towel. For the first three days the pencilling is done twice a day; later, once a day. He claims that this method brings on rapid disappearance of the membrane and recovery of the child.

Remarks on the Scope and Origin of Fibroid Phthisis.

A. G. Auld, in *The Lancet* for November 5, 1892, urges the separation of tubercular from non-tubercular fibroid phthisis, insisting that the latter exists, and citing the following case to prove it: Man, aged 30, tinsmith, ill for ten years since a pulmonitis. Troubled with cough, yellow occasionally blood-stained expectoration, which lately became fetid, and pain in the chest. Respirations were 22, right side of chest flattened and dull on percussion. Temperature ranged between 99° and 103° F. When seen later the left lung had become involved, as shown by retraction, dulness and tubular breathing in the supra and infraclavicular regions, etc. The sputum carefully examined showed no tubercle bacilli. Hectic was present. After death Dr. Coats performed the *post-mortem*. The right lung was so adherent to the chest wall that it had to be dissected out. It contained several cavities of large size, lined by a perfectly smooth membrane considerably sacculated. Hardly any lung tissue was left, and no trace of active disease could

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be found. The left lung was united to the chest wall by adhesions of almost cartilaginous consistence. The lower lobe was shrunken and consisted of dense fibrous tissue of dark gray color. In the midst of this tissue were frequent collections of a pultaceous and calcareous matter. The rest of the organ was the seat of apparently recent lobular condensations and otherwise odematous. The other organs were healthy. Careful microscopic examination made by Dr. Coats and the writer revealed entire absence of tuberculosis. To the writer this case suggests the possibility of frequently occurring cases of fibroid phthisis, in which the tuberculosis present is an accidental and late complication, having nothing at all to do with the original trouble.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

PYLORECTOMY.

DEFONTAINE (*Archiv. Province de Chirurgie*, 1892) reports a case of successful extirpation of cancer of the stomach. The patient was a woman aged 34 years, who for six months had suffered from gastric pain and during the last three months from excessive and severe vomiting. At the operation a small round tumor was found, which had contracted but few and slight adhesions to the surrounding parts, was removed from the pyloric end of the stomach. After the upper half of the large opening in the walls was closed, the lower and still patent portion of this opening was fixed to the open end of the duodenum by two rows of sutures, one uniting the edges of the mucous membrane, the other the serous. The author attributes much importance to his method of stitching the divided end of the gut. He applies what is called segmented spiroidal continuous sutures This consists of a series of short continuous sutures interrupted after every five or six stitches. The continuous is preferred to the interrupted on account of its being more readily applied and thus lessening the duration and severity of the operation. The subject of this case made a good and speedy recovery. She was able to leave her bed on the eighteenth day, and on the twenty-sixth day was apparently well. The operation lasted two hours and a half. In conclusion the author states:

(1) It is an operation which undoubtedly holds first place, from a surgical point of view, in the treatment of cancer of the stomach.

(2) It is suitable in cases of gastric cancer with slight adhesions, which condition, however, is rarely met with when surgical aid is first called.

(3) When it cannot be performed under favorable conditions, the surgeon should fall back on the operation of gastro-enterostomy.

(4) Operative treatment is the only means of remedying a disease so frequent and formidable as gastric cancer, and should therefore be removed in good time, those cases being rejected in which the patient is decidedly cachectic and the disease too far advanced for any surgical interference.

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ARTERIAL SALINE INFUSION; A REPORT OF THREE ADDITIONAL CASES BY THE NEW TECHNIQUE.

DAWBARN (*Medical Record*, November 12, 1892) reports a new method of injecting saline solutions into the arteries. All that one requires will be always at hand.

(1) A hypodermic needle—large size preferred.
(2) A Davidson syringe, from which the usual nozzle is removed.
(3) Boiled water as hot as the hand can tolerate.
(4) A heaped teaspoonful of table salt.

Never omit the salt, as it would be fatal to mix plain water with blood. Six parts of salt to one thousand of water renders the injection safe, and, for practical purposes, seems as good as the most complicated saline-alkaline formula possible.

As to the amount of water needed. A pint at a time is enough within the artery; the operator cannot seriously err on the side of throwing too much into the subcutaneous tissue. Always the mistake is made of injecting less than half the right amount—which is usually at least two quarts; and a gallon would do no harm if properly distributed in a dozen or more spots. The half-filled arteries of hemorrhage or shock will promptly use what is needed. If there be an excess over this amount, in a few hours to a day it will gradually be taken up from the connective tissue, and the kidneys will dispose of it.

The technique is as follows: The Davidson syringe, needle and hot water being ready, the operator now feels, just beneath the middle of Poupart's ligament, for the femoral artery, here large enough in calibre to carry a lead pencil. If the heart is still beating the great pulse can almost always be felt. The aspirating needle is now forced gently and directly into the artery, entering it at right angles; not with a sudden plunge, but by a slow rotatory movement. As soon as the point is within the lumen, bright red blood will fill the needle instantly, whereupon it is held very firmly in place while an assistant slips over the base of the needle the end of the syringe, already filled, and ties it in place with a thread. The solution is now steadily thrown into the arterial current, and necessarily slowly, which latter is an added point in favor of this plan. It takes about one half hour for a pint to enter. To maintain the temperature at about 120° F. the bowl containing the solution should be placed in a larger one holding much hotter water. As soon as the circulation seems improved somewhat, the subcutaneous method of infusion should supplant the arterial.

NON-TRAUMATIC PERFORATION OF THE BLADDER AND ITS RESULTS.

In the *Archiv für klinische Chirurgie*, Band XLIV, H. ii, S. 303, WAGNER considers the subject of perforation of the bladder. Cases of rupture resulting from the fall of a heavy weight, or direct injury from a penetrating body, or as a sequence of it, are included, while attention is directed to those occurring from stone in the bladder, foreign bodies introduced into the urethra, over-distention, tumors, ulcers, affections of the bones and abscesses. Perforations from within outward occur from the presence of stone in the bladder, and particularly when it is held in a diverticulum. Fifteen cases are given. They occur equally in men and women. The perforation takes place usually behind and below but may occur at other spots. They may also follow the crushing of a calculus. Ten cases of ulceration from calculi are then given. Ulceration may also take place from the presence of foreign bodies, as pieces of catheters, etc. Seven cases of rupture from over-distention are detailed.

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The author's second group includes those arising from disease of the bladder wall, as by tumors. Nine of such cases are given. Perforation from tuberculous ulceration is very rare, as also from syphilis. Oliver, in the *Med. Times and Gazette*, 1885, describes a perforating ulcer of the bladder similar to those which occur in the stomach and duodenum, but it must be quite rare in Germany. Perforations from prostatic hypertrophy and stricture are mentioned together with the autopsies of two cases. The third part of the article relates to the wounding of the bladder in operations, such as herniotomy, gynecological procedures, etc. Of these there are several examples. Then follows perforations by foreign bodies acting from the interior of the abdomen, and cases are cited, such as one in which a needle was swallowed, which worked its way into the bladder, causing a calculus. Those arising from malignant growths are also discussed, with numerous examples, also of penetrating and gunshot wounds.

The Aseptic Treatment of Wounds.

Neuber, of Kiel, in the *Archiv für klinische Chirurgie*, Band XLIV, H. ii, S. 438, gives a clinical lecture on wound treatment. During the performance of the operation there is to be no irrigation of the wound, and only once just before the insertion of the sutures it is washed with a 0.6 per cent. salt solution. No drainage is used and the wound is to be sewed shut. With the exception of a sponge enveloped in sterilized gauze, no antiseptic or sterilized dressings are employed. In 1880 the author began to dispense with drainage, at first in the extirpation of small tumors, and later in larger operations, such as removal of the breast, etc. In 1884 he ceased using it in amputations. The method inaugurated by Kocher in 1882 of tamponing the wound primarily and then two days later inserting the sutures gives very good results. It is a sure method but open to the objection that a second antiseptic dressing has to be performed and the patient is required to undergo practically a second operation under narcosis.

In Esmarch's clinic buried sutures have been used a long time. The author used them for amputations in 1883 and in 1884, as did likewise Küster. They are intended to obliterate all clefts and cavities in wounds. From 1884 to 1886 the transition from antiseptic to aseptic surgery took place, and instead of sterilizing with antiseptics heat was used. Since that time the author irrigates small wounds not at all and large wounds but seldom, and when necessary only with sterilized water. This method was found to produce so little discharge from the wound that in 1886 and 1887 drainage was dispensed with. The latest development of the author's method is as follows: The whole wound is loosely filled with moist sterilized gauze in long strips two-thirds of an inch wide; all ravellings are to be removed before use. If surgical tuberculoses are under treatment iodoform gauze is used. Over this gauze the lips of the wound are laid and carefully united with sutures, except a small cleft at either end of the line of union. One end of the gauze strip is brought out of this opening. While an assistant compresses the parts with sponges enveloped in sterilized gauze, the operator carefully withdraws the strip by pulling on its projecting end. On the removal of the gauze the remaining opening is closed by the sutures which have already been inserted but allowed to remain untied. Compression with the sponges is then made, which drives out any remaining air and blood, and they are then retained in place with a bandage. Over these sponges cotton and splints may be applied. If any filament of gauze remains behind in the wound it will not give rise to any reaction nor interfere with healing.

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The Radical Cure of Hernia.

In the *Correspondenz-blatt für Schweizer Aerzte*, Kocher, of Bern, describes the method in which he operates for the radical cure of hernia, and gives statistics. From the year 1875 to 1886 there were forty-two cases, of which 83.4 per cent. were cured, and 16.6 per cent. returned. From 1886 to 1891 there were 119 cases. The histories of ninety-four only of these were available. They gave twenty cases of return. This high percentage of failures was due to the greater severity of the cases operated on and other causes. In two cases the radical cure method could not be carried out perfectly. In another the sac tore and could not be properly ligated. Eight of the cases were not operated on by the author himself. In four of those cases and three of his own the pillars of the external ring alone were united. If the cases in which healing was delayed by infection and suppuration, or thrombosis be excluded, then the remaining 89 per cent. rose from bed, in seven and a half days. In eight cases in which suppuration delayed healing the wound closed in twenty-three days. The quickness of healing does not add any security against a return of the trouble, and the author agrees with Macewen that the patient is best confined to his bed for six weeks, and not allowed to return to his work for eight weeks more. Out of the ninety-four cases suppuration occurred in eight, and five of these had a return of the trouble. Following Socin the author formerly dispensed entirely with the use of a truss, but now orders them in the following cases: When there is more than one hernia; when there is relaxation of the abdominal walls; also when the rupture has been exceptionally large. In seventy-six cases which pursued a favorable course there were only two returns. The method used was that of ligating and removing the sac and suturing the canal as described by Berger (*Traite de Chirurgie, Duplay et Reclus*, 1892), as the procedure of Lucas Championniére. To close the canal Bassini advised slitting up the external oblique muscle, raising the cord and sewing the posterior portion of the canal shut. The author believes this slitting up unnecessary. The steps of the operation are as follows: Isolation of the hernial sac; ligation of the same as high up as possible so as to leave no funnel shaped depression of the peritoneum; closure of the canal with silk sutures uniting the deep and superficial structures. In femoral hernia the pectineal fascia (ligamentum Cooperii) is transfixed and sewed firmly to Poupart's ligament. The author describes a new method in which the sac is freed and brought out of a buttonhole in the external oblique muscle above the internal ring. It is then twisted and brought down to be fixed firmly in the inguinal canal with deep sutures, the surplus portion of the sac being removed.

A Case Illustrating the Constitutional and Hereditary Origin of Varicocele.

Lydston (*Medical News*, November 26, 1892), reports the case of a man aged 39, who applied to him for the relief of a double varicocele. The veins of the entire abdomen were enlarged and markedly varicose. The veins of both extremities were enormously enlarged. Both testicles were atrophied, the right especially so. By examination the patient was found to be suffering from severe hemorrhoids. His family history was very interesting: His mother had been a very delicate woman, and had suffered from severe varices of the extremities. No other facts could be elicited save that she died from pernicious anemia, a fact in itself was quite suggestive. One of his brothers was troubled with severe nevi, located upon the inner aspect of one thigh.

The author strongly insists upon the dependence of varicocele upon perturbation of the structure of the general venous system.

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A Clinical Classification of Hip Disease.

Lovett (*Boston Medical and Surgical Journal*, October 13, 1892) says that hip disease falls into four well marked types, each of which corresponds to a particular type of the pathological process.

(1) The destructive form, where the disease is rapid and severe, but little influenced by ordinary treatment; extensive infiltration of the soft parts takes place, and in most instances the disease passes on to a fatal issue.

(2) The painful form, where pain is a prominent symptom, and exacerbations are common.

(3) The quiet or painless form, where pain is an unimportant factor or is entirely absent.

(4) The transient or ephemeral form, where the symptoms are mild and the course of the disease is run in a few months.

The destructive form is most common in children of a tuberculous inheritance and poor vitality. Its onset is rapid and painful, often excessively painful. The general condition is impaired and abscess formation takes place early. One abscess follows another with profuse discharge through sinuses which open widely and are surrounded with colorless granulations.

Such children die most often of exhaustion, they are particularly liable to tubercular meningitis, and if they live it is these cases that develop amyloid degeneration.

The painful form is the most common type of hip disease. Manipulation causes pain and is present in the form of night-cries and continued pain. It is not steadily present, and is more or less controlled by treatment.

The general course of the disease is shorter than the painless form, and the joint likely to be a better one after the disease has run its course.

The painless or quiet form represents a distinct type of disease. Here pain is almost always absent, although night-cries may be present early in the disease, and later a painful stage may be brought on by a fall or some traumatism. In general muscular spasm is the important and prominent feature in this form of the disease.

Malpositions occur slowly and are more persistent than in the painful cases. Shortening is more marked than in any other form.

The transient or ephemeral form generally begins in a typical way but subsides in the course of three or four weeks.

With regards to the pathology in these cases all must be conjectural. There is probably a focus of tuberculous disease situated in a part of the epiphysis remote from the joint; and that in its growth it causes enough disturbance in its neighborhood, to give rise to symptoms of joint irritation. Having caused these symptoms, it seems probable that the focus of the disease either becomes quiescent or grows away from the joint if it continues active, and after a brief time the symptoms subside once more.

Massage of the Prostate.

Ebermann (*Internationales Centralblatt für die Physiologie und Pathologie der Harn und Sexualorgan*, October 13, 1892), details his experience with massage for affections of the prostrate gland. The procedure is carried out by him as follows: The patient lies upon his back, or if strong pressure upon the gland is necessary, stands with the body bent forward. The masseur then introduces his index finger into the rectum and rubs the prostate, stroking it from right to left, and

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vice versa, pressing it against the symphysis; next he presses the gland more or less strongly upwards, or more correcting speaking, from the point towards the base.

Occasionally it is advantageous to practice these manipulations over a large size steel sound introduced into the bladder.

The sittings last from five to ten minutes, or longer, and may be repeated daily, or on alternate days.

The author thinks by these manipulations it is possible to cause absorption of pathological products in the prostate, by forcing them into the veins and lymphatics of the gland, whence they are carried into the general circulation and excreted.

In the selection of suitable cases be guided by the consistency of the organ, whether it be hard or soft, uniformly indurated, or whether the induration is limited to a few nodules, and whether malignant disease exists.

In acute prostatitis, massage is contraindicated; because it tends to increase the already great irritability of the part. It may, however, be employed with great advantage in the latter stages of the disease, when the gland is still somewhat enlarged, but not very sensitive, and there is still some difficulty in urination. Cases of acute and chronic prostatitis, that terminate in abscess formation, are, in the author's opinion, greatly improved by massage after evacuation of the pus in the urethra.

It is in chronic prostatitis associated with swelling, and in soft uniform hypertrophies of the gland that this method is especially indicated. In certain forms of myomata, where the hypertrophy is in the form of nodules, often great benefit may be effected practicing the manipulations over a bougie introduced into the bladder.

A point to be remembered, that the median part of the gland when hypertrophied projects into the bladder, and cannot be reached by massage. In malignant diseases and tuberculosis these manipulations are of very little value.

The Anatomy of the Ileo-Cecal Valve.

In the *Archiv für klinische Chirurgie*, Band XLIV, H. ii, S. 410, Oscar Kraus gives the results of his investigation into the structure and functions of the ileo-cecal valve. After stating the views of several authors, among them Hyrtl and Luschka, he says that the weight of authority holds that the ileo-cecal valve, as a rule, prevents the contents of the colon from passing backward into the ileum; under certain exceptional conditions the regurgitation can, however, take place. The author made examinations of about 100 specimens. The valve is formed by a duplicature of the ileum into the cecum, making a sickel-shaped slit. In eleven of the cases the valve was found insufficient. In new-born children it is also insufficient, but was found tight in one five-year-old. The following is his summary:

(1) The ileo-cecal valve in the adult is normally competent.

(2) When the valve is competent the ileo-colic fold of the large intestine is overlaid by the two adjacent ones.

(3) Insufficiency occurs when the invagination of the ileum into the colon recedes. This takes place on the rupture of the connective tissue of the anterior upper edge of the ileum at its point of opening into the colon. Incompetency is caused by the shortening of the upper lip of the valve.

(4) The same condition was found in the valves which were insufficient as was produced artificially by overstraining those which had previously been normal.

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The Specific Microbe of Soft Chancre.

Krefting (*Centralblatt für Chirurgie*, No. 37, 1892), says that Finger, for a number of years, has claimed the presence of the organism. Ducrey and Allem speak also of the presence of a specific organism. The author made inoculations through several generations, and the same kind of bacterium was constantly found in the pustules. A bacillus 1.50—2μ long, 0.5—1μ broad, short and thick, and with rounded ends. They often show a lightly colored point in the middle. They are generally seen in groups of five or six, often within the protoplasm of the cells.

These organisms can best be stained with "Boraxmethylen blue," and not by Gram's or Kuhne's method. As yet no one has succeeded in making artificial cultures. Within the last two years the author has described two kinds of glandular inflammation associated with chancroid:

(1) The simple suppurating.

(2) The virulent or chancrous buboe.

Strauss thinks that the last variety is only a more virulent stage of the second. Whether the organism, at the present time, is identical with that of Unna, is still an open question.

In relation to the therapie of the non-virulent buboes, the author states that repeated punctures and compression bring about a very rapid cure.

The Radical Cure of Hernia, with a Description of a Method of Operation for Femoral Hernia.

Cheyne (*Lancet*, November 5, 1892), says that practically all the methods for the closure of the femoral canal consist, after tucking up the sac in the attempt to approximate Poupart's and the fascia over the pectineus. Now Poupart's ligament is a tense band, and when stitched down to the pectineal fascia, one of two things happens:—

(1) The tension is so great that the stitches soon cut their way out, or

(2) What usually happens if the pectineal fascia is alone taken up in one stitch, it is at once torn off the pectineus and carried towards Poupart's ligament, and the stitch soon cuts through the fascia.

On thinking over the matter, he concluded that the only satisfactory plan would be to turn in some tissue which would fill the femoral canal and at the same time not be subjected to any tension. The author states that a flap cut from the pectineus muscle itself would answer all purposes.

The plan of operation is as follows:—After the hernia has been reduced the neck of the sac is ligatured and stitched to the abdominal wall. A flap is then marked out on the pectineus muscle of sufficient size to fill up the crural canal without any tension, and including the whole thickness of the muscle. The incision in the muscle begins at the inner wall of the crural canal, runs for a short distance parallel with Poupart's ligament, and then curves downwards, outwards and upwards. At the two lowest angles of the flaps stitches are passed and tied so as to get a good hold of the muscle. The flap is then peeled up from the bone and the stitches are passed through the abdominal wall, above it and just at it.

The result is that the femoral canal is filled up with a thick mass of the fibrous tissue. The sutures used were of Chinese silk of medium thickness. The author has had perfect results in all his cases, the region of the crural canal remaining a hard mass, without the slightest impulse on coughing, and the patients do not wear a truss.

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Suppurative Peritonitis.

Körte (*Berliner klinische Wochenschrift*, No. 31, 1892), gives the results of nineteen consecutive cases of suppurative peritonitis which he has treated during the past two years. He divides his cases into three classes:

(1) General septic peritonitis with little exudation and with paralysis of the intestinal walls; the cases are not capable of improvement by direct surgical interference.

(2) Suppurative peritonitis without adhesions.

(3) Suppurative peritonitis with adhesions.

Cases of tuberculous peritonitis or of peritonitis following internal strangulation or gangrenous hernia, are not reckoned in the series of cases. In the second and third class of cases, especially in the latter, much may be done by surgery. Removal of the purulent fluid is advised as the best method of treatment, but washing out of the peritoneal cavity with antiseptic solutions, is said to be futile, and is not recommended. By these means abdominal pressure and tension are reduced; hence, interference with the heart and lungs is prevented. If the peritonitis is due to perforation of the bowel, and this can easily be seen, closure of the aperature is advised, but prolonged search for the opening is deprecated.

After incision and drainage of the pus, drainage tubes are inserted. Of the nineteen cases operated upon, six recovered. The ages varied from two to seventy-one years. Twelve of the cases were general peritonitis with fibrinous exudate, which formed adhesions. Out of these cases six recovered; hence, the value of adhesions in these cases is seen to be very considerable. As regards the time for operation, sixteen were operated upon before the end of the fourth day from the commencement of the disease. The operation is always carried out by the median incision, and when the purulent collection is reached, it is mopped out with tampons of wool. Recovery was delayed in many cases, and further incisions were required. In some cases intestinal fistulæ formed, which either healed spontaneously or were submitted to further operation. For these cases the continuous water bath is advised. Körte kept some in the bath for five days without considerable advantage.

The Treatment of Inoperable Malignant Neoplasms by the Bichloride of Mercury and Oil.

Lees (*Lancet*, October 15, 1892) relates his experience with injections of bichloride of mercury in oil, in inoperable malignant neoplasms. The strength of the oil used is 1 in 2,000. An ordinary hypodermic syringe was used, the needle, however, was shaped like that of an ordinary sewing machine, having the openings on the sides. The needle, with the syringe, is then to be inserted into the centre of the tumor, and first moving the needle freely from one side to the other, slowly inject twenty minims of the oil mentioned. The needle is then withdrawn carefully, the finger placed over the needle wound until it can be covered with a little piece of carbolic plaster.

In most cases, within two days, the shrinkage of the tumor is most marked. The author tried the injections in a case of sarcoma of the neck and in two cases of carcinoma of the breast. The injections were made twice a week for three weeks with great success. The author, through sickness, was prevented from making any more experiments, but thinks it ought to prove a powerful check if not completely curing the disease.

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The Operative Treatment of Strangulated Diaphragmatic Hernia.

Schwartz and Rochard (*Revue de Chirurgie*, September, 1892) discuss the surgical treatment of this lesion. The subject of the case reported by the authors was a man aged 33 years, and the hernia, though certainly not due to injury, was very probably an acquired and not a congenital affection. The diagnosis of strangulated diaphragmatic hernia is attended with great difficulty, and cannot always be established even after a laparotomy. This operation, though indicated in most instances as indispensable for diagnosis, cannot be regarded as useful for treatment. It is very difficult, and in most cases impossible, to reach the seat of hernia, so as to be able, by relieving the strangulation, to drag the strangulated intestines downward into the abdominal cavity. But even if this could be done it would be imprudent to bring into contact with the healthy peritoneum the infected contents of a strangulated hernial sac. Moreover, it would be found impossible by any abdominal operation to effect a radical cure by closing the orifice in the diaphragm, and thus preventing a certain and speedy return of the hernia.

The authors suggest that it would be preferable to deal with such a hernia by a transpleural method of operation. Such treatment, they are convinced, is not only possible but also easy.

After the pleural cavity has been opened by a free incision through the skin, and a removal of a portion of the ninth, and also, if it be found necessary, of the tenth rib, the hernia is freely exposed, and can be manipulated as any external strangulated hernia. The constriction may be incised, the sac opened, and, together with the contents, carefully cleansed, and every precaution observed to prevent peritoneal infection. Inflamed omentum may be resected, and, if the strangulated intestine be gangrenous, the surgeon need not hesitate to resect the affected loop. Finally, steps should be taken to establish a radical cure. The sac should be resected and the edges of the gaping diaphragm be refreshed and brought together by sutures, including both the muscular structure and the pleura. It would be advisable, the author holds, to leave open the upper part of the abdominal wound made in the preliminary laparotomy until the completion of the transpleural operation.

A New Operation for Paralytic Talipes Valgus and the Enunciation of a New Surgical Principle.

Parrish (*New York Medical Journal*, October 8, 1892), says the greater number of these deformities results from polio-myelitis. The muscles of the lower limbs are most frequently affected by this disease. The muscles of the legs are more frequently involved than those of the thigh. Of the leg muscles, the anterior and posterior tibials, the muscles of the calf and the peroneals are in the order named the most frequently affected. It is well-known that the extensor pollicis, which is a very strong muscle, and seldom affected by paralysis, might bear the burden of its weaker neighbor. After isolating both the anterior tibial and extensor pollicis muscles, the foot was placed in the position of inversion and extension, and the shorter tendon of the first sewed to the lengthened tendon of the latter. The two tendons were first sewed together above the annular ligament. Then, placing the foot in the position of extreme eversion, the author pulled upon the belly of the extensor pollicis muscle, and when the foot returned from its everted position, the arch was raised and the great toe was extended. On another subject the two tendons were sewed below the annular ligament, and the experiments were repeated with equally satisfactory results. After being convinced that

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the operation would be a success, it was tried on a little girl, aged 3 years and 10 months, who had had infantile paralysis when 11 months old. At the time of operation both tibial muscles of the right leg were completely paralyzed. All the other muscles which had been involved recovered.

Under chloroform an incision was made over the space between the tendons of the anterior tibial and the extensor pollicis muscle, extending from the annular ligament three inches and a half upwards. Both the tendons were found and isolated. The tendon sheaths were cut away and the foot everted, so as to shorten the tendon of the anterior tibial and lengthen that of the extensor pollicis. The opposing tendon surfaces were then freshened with a knife and sewed together with cat-gut suture for the space of an inch or more, and the wound closed. The foot was then placed in its proper position and retained so by a plaster-of-Paris bandage, which was worn for a month. When the dressing was removed the wound was found perfectly healed and the foot in much better position than before. What the final outcome will be the author is, as yet, unable to say.

Subcutaneous Rupture of the Kidney, with Report of a Case.

Bolroff (*Centralblatt für Chirurgie*, No. 36, 1892) refers to the case of an eighteen-year-old athelete who, while exercising on the bar, fell to the ground on his side. He became immediately unconscious. As soon as the patient regained his senses he complained of great pain in the left loin. At the first evacuation pure blood was passed from the bladder. On the second day this hemorrhage ceased, but reappeared on the sixth day. On the twelfth day there appeared in the right loin a long, oval tumor which extended from the right hypochondrium to the crest of the ilium. There was dullness over the entire tumor and patient complained of considerable pain on pressure. Rupture of the kidney was diagnosed and the patient was prepared immediately for operation. An incision was made from the twelfth rib to the crest of the ilium, and two cross incisions, one parallel with the ribs, the other with the crest of the ilium. After division of the capsule bloody urine appeared. After removal of the coagula, an irregular rupture was seen extending through the upper part of the kidney. This loose piece was removed, followed by removal of the entire kidney. The operation lasted two hours and a quarter. Towards the end of the operation the patient's heart began to fail, and 225 grammes of a 0.6 per cent. salt solution were injected. The patient's condition remained good after the operation, the amount of urine varying from 1,000 to 1,600 cubic centimetres. In the course of two months patient entirely recovered. In conclusion the author states that so soon as kidney rupture is diagnosed, and there is no danger of great hemorrhage, an operation should be immediately performed. Experiments have shown that after ligature of the kidney-vessels the organ does not become gangrenous, and it is, therefore, not always necessary to remove the organ.

A Practical Sterilization Apparatus for Surgical and Bacteriological Uses.

In the *Centralblatt für Chirurgie*, No. 39, S. 788, Kronacher gives a description of a sterilizing apparatus for instruments, etc. It is made of copper and has for its object the use of both moist and dry sterilization. The instruments are placed first on a removable tray and immersed in the hot soda solution and boiled. The vessel containing the hot solution is then removed and the articles to be sterilized replaced in the apparatus and subjected as long as desired to dry heat.

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THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.

ASSISTED BY

DAVID CERNA, M.D., PH.D.

TETANUS TREATED SUCCESSFULLY BY ANTIPYRIN.

CAVIANA and VENTUROLI (*Riforma Medicale*, 1892), record two cases in which the administration of antipyrin, in large doses, seems to have contributed largely to the ultimate recovery of the patients. It is true that chloral was given at the same time, but the authors do not judge that drug to have been the essential part of the treatment, for the spasms were only modified as long as the antipyrin was taken, and recurred when chloral alone was given. This is by no means the first case recorded in which antipyrin has been reported as successful in tetanus, and it may well be that, even if it be not actually curative, it does good by enabling the patient to live through what would otherwise be the fatal course of the disease, while the toxine is being eliminated by the ordinary channels.

SUBCUTANEOUS INJECTIONS OF PHOSPHATE OF SODA IN NERVOUS AFFECTIONS.

CROCQ (*Gaz. medical de Liège*, October, 1892), reports his results of the use of subcutaneous injection of phosphate of soda (2 grms. to 100 grms of laurel water), three cubic centimetres of this solution are to be injected subcutaneously in the arm or leg with strict antiseptic precautions. At first, the injections are to be given every day, and afterwards on alternate days.

No reaction followed these injections, only a slight burning sensation at point of puncture, lasting only a few seconds.

The author states that the drug used in this manner is a powerful nerve tonic, which will generally effect a cure in cases of functional disorders of the nerve centres, but can only exert a palliative influence in organic lesions.

Several cases of locomotor ataxy are reported to have been greatly benefited by the use of this drug.

THE ACTION OF SOME ANTIPYRETICS OF THE AROMATIC SERIES ON THE BLOOD.

SCHMITT (*British Medical Journal*, October 15, 1892), has made investigations into the action of fourteen of the better known new antipyretics on the blood, with the object of avoiding the unpleasant accidents which have sometimes followed the use of some of them. He has found that all the aromatics drugs, used as antipyretics, produced in variable degrees, changes in the blood, consisting in the conversion of oxy-hemoglobin into methemoglobin, a diminution in "the respiratory cavity" of the blood, and even destruction of the red corpuscles. The changes vary in intensity with the nature and dose of the drug; but for each drug are directly proportional to the degree of reduction of temperature produced.

They may roughly be divided into the following groups:

(1) Those which, with a medium dose only, fix the oxygen more firmly to the hemoglobin—antipyrin, phenacetin.

(2) Those which in moderate doses produce simple intracorpuscular met-

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hemoglobinemia—anisic acid, thallin, antithermin, kairin, exalgin, methacetin, acetylamidophenol.

(3) Those which in moderate doses, especially if repeated several times, produce methemoglobinemia, with the destruction of the corpuscles—acetanilide, benzanilide, formanilide, methylformanilide, pyrodin.

Arguing from the above facts, and from the incidents which have from time to time occurred, the author concludes that, save in cases of hyperpyrexia, for their temporary action in reducing temperature, the antipyretics should be sparingly used. In a word, they may be excellent analgesics in patients with healthy blood corpuscles, but their value as antipyretics is open to question, on account of the risk of toxic action on the blood.

The Action of Ox Serum in Syphilis.

Sartori (*Gazz. degli Ospitali and British Medical Journal*, October 29, 1892) reports the results of injection of ox serum which seems to have been more efficacious than lamb's serum as reported previously. Of the cases described one had undergone partial treatment with lamb's serum, the other three being recent cases.

The injections were made into the buttocks on alternate sides, the mean dose being six cubic centimetres. The first case lost all manifestations of his disease after the eleventh injection. The second also appeared to be free after the fifth injection, and was discharged after two more doses. In the third eight injections were necessary, while in the fourth only seven were required.

Slight symptoms of shock seemed to have made their appearance on rare occasions after some of the injections, but nothing alarming was ever noticed, nor anything which would make it imperative to discontinue the treatment.

The Use of Trional.

Boettiger (*Berliner Klinische Wochenschrift*, October 17, 1892), has used trional in seventy-five cases. The single evening dose is from one to four grammes was mostly used, it was occasionally given in divided doses during the day. Any systematic treatment was not interrupted. The cases fall into three groups:

(1) Simple sleeplessness occurring in functional or organic nervous diseases. Uninterrupted and mostly deep sleep occurred in from fifteen to forty-five minutes. In only one case was there any giddiness or other ill effects noted on the following day. In some cases the drug was used every evening for two or three weeks without losing its effects.

(2) Sleeplessness with body pain. Here the results were not nearly so good. In one case referred to of severe hypochondriasis, the result was variable according as there was pain. As regards the morphia and cocaine habits, the author, unlike Schaefer found it useful in one case.

(3) The third group including patients suffering from mental diseases, is divided into two parts according as the sleeplessness was accompanied by moderate or severe mental excitement, etc. In only two of thirty-three cases of the former class there was no hypnotic action. The drug had no effect on the mental condition.

In the second class the results were variable. Whether larger doses would

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have been more efficient is doubtful; unpleasant results have been noted after such large doses. The author refers to five cases of mental disease with marked excitement, in which fractional doses were given with the best results, but he adds that the number of the cases was too small. The drug was given by the rectum, usually in two gramme doses in sixteen cases.

It acted as promptly and efficiently as when given by the mouth. The author concludes that trional is an excellent hypnotic and sedative, and without unpleasant results when given in moderate doses. Sleep is often induced in fifteen minutes.

In some cases trional may take the place of hyoscine, yet the subcutaneous injection of the latter is preferable in cases of great mental excitement.

The Use of Lisophan.

Saalfeld (*Therapeutische Monatshefte*, 1892) describes the use of lisophan in skin diseases. He has found it of special value in parasitic affections of the skin, both vegetable and animal. In sixteen cases of tinea tonsurans of the face and body, thirteen were cured and three much improved; and in three cases affecting the scalp one was cured and the others much improved. In some cases of parasitic sycosis good effects were obtained, but, when necessary, epilation was also had recourse to. It was used in a one or two per cent. spirit and water solution. In pityriasis versicolor an ointment of one or two per cent. gave good results, and in case of pediculosis capitis and pubes a one per cent. solution was useful. Scabies, however, seemed to improve more rapidly under the more usual method of treatment. In some cases purigo, chronic eczema with infiltration, sycosis vulgaris and acne vulgaris, and rosacea, this treatment is efficient. In psoriasis and primary syphilitic affections it was without result, and in urticaria it was of little service as an anodyne application. As a drying powder, one per cent. for wounds, it had but slight effect. It is contraindicated in any acute skin disease owing to its irritant properties, even in dilute solutions.

Jaborandi in Hiccough.

Nobel and Stiller (*Centralblatt für klinische Medicin*, 1892) refer to the good effects of jaborandi in hiccough. Nobel's patient was a man suffering from influenza, and the infusion of jaborandi was used. He draws attention to the fact that notwithstanding the presence of some cyanosis, the drug had no ill effect upon the heart. He refers to other recorded cases, and adds that it remains to be proved which constituent in jaborandi brings about the good results.

Stiller says that he has used pilocarpine for a long time, ten drops of a one per cent. solution three or four times a day, in hiccoughs of a nervous origin, and that it is the best remedy known for this condition. He does not employ it in reflex hiccough of severe abdominal disease (peritonitis). At times, especially in hysteria, only improvement or temporary cessation in the hiccough has been obtained, necessitating the further use of the drug. Stiller says that the good effects of Jaborandi are due to pilocarpine.

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OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D., AND FRANK W. TALLEY, M.D.

Cesarean Section for Eclampsia.

Van de Poll (*Nederlandsche Tijdschrift voor Verloskunde e Gijnæcologie*, Band 1388. page 140) had a case of puerperal eclampsia which had received 1½ grains of morphia, subcutaneously, in the course of three hours, without relief, having had despite the large doses of morphia ten convulsions. The os was undilated, scarcely admitting the little finger. Cesarean section was decided upon and performed by Van de Poll, the mother dying two hours later. An autopsy showed acute nephritis. The child was extracted alive.

Tubal Moles and Tubal Abortions.

Bland Sutton, of London (*Lancet*, November 12, 1892), characterizes the tubal mole as differing from the uterine mole in that it is of spherical shape at its early stage, but, after attaining the dimensions of a walnut, becoming ovoid. The uterine mole is more or less spherical. In the majority of cases the amniotic cavity occupies an eccentric position in the tubal mole, in consequence of which the thin amnion is easily ruptured, permitting the escape of the embryo. In the uterine mole the amniotic cavity occupies the centre of the mole. He regards the finding of chorionic villi in the microscopical examination of a clot as indicative of a mole as the presence of an embryo. It is his belief that blood and blood-clots are occasionally found in the Fallopian tube unconnected with pregnancy, and considers that the term hemato-salpinx should be reserved for the non-gravid Fallopian tube distended with blood, secondary to occlusion of the abdominal ostium, and that all Fallopian tubes containing blood-clot should not be regarded as examples of hemato-salpinx. Regarding tubal abortion the author states that occlusion of the abdominal ostium, after the retention of an impregnated ovum in the Fallopian tube, is usually complete by the sixth, but often delayed to the eighth week (unless the ovum is lodged in the ampulla of the tube, when the ostium cannot close). So long as the tubal ostium remains open the ovum is in constant jeopardy of being extruded through it into the peritoneal cavity, especially when the ovum lies near the ampulla of the tube. The impregnated ovum is extruded into the general peritoneal cavity invariably in the condition of a mole, and the accident is always accompanied with hemorrhage. Free hemorrhage may occur from a gravid tube and the mole be still retained, in consequence of its attachment to the wall of the tube. This constitutes incomplete tubal abortion. A gravid tube may burst and the mole escape into the peritoneal cavity through the unclosed ostium. Sutton believes that because an adventitious opening is found in the wall of a gravid tube, it by no means follows that the ovum escaped through it. The hemorrhage, in his experience, has been more abundant in cases of tubal abortion than from rupture of the tube.

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Puerperal Tetanus.

Vinay, of Lyons (*Lyon Médical*, December 20, 1891), has collected 106 cases of puerperal tetanus, including one case observed by himself. Of these fifty-nine followed labors at term, and forty-seven occurred after abortion. Of the last, thirty-five were after abortions in the first four months of pregnancy, one at the seventh month. The tetanus did not occur with especial frequency after the major obstetrical operations. In twenty cases it followed artificial separation of the placenta seventeen times, after tamponnade; five times, after forceps; three times, after turning; three times, after induced abortion; six times, after perforation. No recorded cases following Cæsarean section or curettement. The majority of the women affected were multiparæ, especially multiparæ over 35 years old, and mostly peasants or from the lower circles; uncleanliness with earth or stable filth was prominent. From the same cause, Vinay suggests, rests the so frequent occurrence in negroes and the women of India (Waring reported in three years in Bombay, 232 deaths from tetanus puerperalis). Following abortion the appearance is, as a rule, earlier than after labor at term. Of thirty-seven cases following abortion, it appeared in twenty-one in the first week and in sixteen in the second week, while following labor at term out of forty-two cases, it occurred in nineteen in the first and in twenty-three in the second week. The death-rate following abortion was 89.36 per cent.; after labor at term, 88.13 per cent

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Investigations upon the Hemoglobin Value in the Blood of the New-born.

Cattaneo (*Inaugural-Dissertation*, Basel, 1892) has arrived at the following conclusions from his investigations in the hemoglobin value in the blood of the new-born and of the mother:

(1) The percentage of hemoglobin in the blood of the mother at the moment of birth has an average of 93.8.

(2) The fetal blood has a larger percentage of hemoglobin than that of the mother, the average being 120.2.

(3) There is no perceptible difference in the hemoglobin value between the blood from the venous and the arterial vessels of the navel-cord.

(4) Anemia in the mother appears to have no influence upon the percentage of hemoglobin in the fetal blood or the blood of the new-born.

(5) In the new-born the percentage of hemoglobin reaches its greatest height from thirty-six to forty-eight hours after birth and sinks again in the course of the next few days.

(6) The blood of the new-born has a greater percentage of hemoglobin by delayed than by early separation of the cord.

(7) In placentas of light weight the fetal blood has a relatively large percentage of hemoglobin; in heavy placentas a relatively small hemoglobin value.

Asafetida in Habitual Abortion.

Turazzo (*Centralblatt für Gynäkologie*, 1892, No. 8), recommends the use of asafetida during pregnancy in cases of habitual abortion. He places the patient, as soon as pregnancy has been diagnosed, upon 1½-grain pills of asafetida, administered twice daily, gradually increasing the dose to ten pills a day. The treatment is continued during pregnancy, the daily dose being gradually decreased. Turazzo has thus successfully carried to term three cases of frequent abortion, one of which had aborted twice and two five times each. A case of threatened abortion at the sixth month was also brought to term.

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Rupture of the Ovary in Pregnancy.

Rosenstein, of Breslau (*Centralblatt für Gynäkologie*, No. 41, 1892), reports the following case of rupture of the ovary, interesting in its diagnosis from rupture of an extrauterine fetal sac. The patient, aged 25 years, had recently borne and suckled her first child. When first seen by Rosenstein she had violent pain, with free vomiting, and was slightly collapsed. There had been suppression of menses for five months, and she believed herself to be pregnant. After a few days the pain and vomiting ceased. A tumor, resembling the uterus at the fifth month of pregnancy was detected. The body and limbs of the fetus were so distinctly felt, however, that they seemed as though free in the abdominal cavity immediately under the parieties. On the following day sensations like labor pains were experienced, and the abdomen became greatly distended. Two weeks later a sound was passed and touched a fetus. There was no hemorrhage or escape of liquor amnii following. The distension increasing Rosenstein operated a week later removing a half-solid, half-cystic tumor of the right ovary, having two large holes with smooth surfaces on its outer wall, from which colloid matter was freely escaping into the peritoneum. The omentum was edematous and strongly adherent.

On the night following the operation the patient was safely delivered of a six months' female child, which died after a few inspiratory efforts.

The chief distinguishing features of this case from rupture of a fetal sac, were:

(1) The absence of any sign of severe internal hemorrhage, and of the discharge of decidua with flooding.

(2) The swelling at first hard becoming soft; had it been effused blood the contrary would have occurred.

The tumor was a papillomatous adeno-carcinoma.

Dystocia from Short or Coiled Funis, and its Treatment by Posture.

King, of Washington, D. C. (*American Journal of Obstetrics*, Vol. XXVI, No. 3) again calls attention to the influence of short or coiled funis in obstructing labor, and to the means of relieving the difficulty by postural treatment. He has collected a number of cases illustrating the difficulties and dangers to life entailed by a short or coiled cord.

In dealing with these cases King advises the change of the woman's posture from reclining to sitting, kneeling or squatting; or by elevating the shoulders, placing her in a position midway between sitting and the dorsal decubitus. He believes that the most of these cases of dystocia can be terminated quickly, without forceps, and with reduced risk to the mother and child by this postural method. The value of the postural method depends upon four factors:

(1) The weight of the child gravitates toward the outlet.

(2) The woman attains greater power of bearing down.

(3) The womb and its contents are forced more deeply into the pelvic canal. The space between the pelvis and diaphragm being reduced by forward flexion of the woman's body, the womb receives pressure from above and behind by the superincumbent viscera, and is thus the better enabled to maintain its retraction between the pains and so prevent recession of the child.

(4) The fundus of the womb is thrown forward; thus rendering the angle formed by the line of its long axis with the axis of the outlet less obtuse, the distance between the two axes is reduced, and so is tension of the cord.

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A New Method for Artificial Respiration in Asphyxia Neonatorum.

Forest (*Medical Record*, April 9, 1892) describes a new method of artificial respiration in asphyxiated children after labor.

The asphyxiated child is first laid for a moment upon its face, allowing the head to be a little lower than the pelvis. A light pressure is then exerted upon the back in order that the aspirated fluids may find exit from the mouth and trachea. It is then to be placed, in sitting position, in a bath of warm water up to the breast. The operator seizes with his left hand the wrists, the child's palms looking outward, while with his right hand he supports the shoulders, holding the head backward by the thumb and fingers. The child's arms are elevated and drawn a little backwards, during which movement they are rotated a little outward. The muscles between the shoulders and ribs are stretched and the ribs are elevated. The abdominal muscles are relaxed through the sitting position and do not oppose the rib elevation, as in the methods of Sylvester and Schultze. During this maneuvre the head of the child falls further backward, thereby closing the esophagus by pressure between the spinal vertebræ and the laryngeal and thoracic cartilages, so that no air can enter. The tongue and epiglottis are at the same time drawn better forward than it were possible to do with forceps. In order to bring air into the lungs through the now freely opened air passages, the operator bends forward and blows, with his mouth upon the mouth of the child. The air now distends the lungs without the necessity of the introduction of the catheter into the larynx. For the expiration the child's body is bent forward, whereby the abdominal organs are pressed upon the diaphragm, at the same time the left hand of the operator is lightly pressed upon the breast which is compressed between his two hands. The movements are then to be repeated.

Uterine Tampon.

Auvard, before the First International Congress for Gynecology and Obstetrics (*Münchener medicinische Wochenschrift*, 39 Jahrgang, No. 42), advocated the tamponing of the uterus with iodoform gauze in all forms of hemorrhage from that organ. In twelve cases of hemorrhage after labor so treated two died—one from tuberculosis two months post partum and one from septicemia on the tenth day. In twelve cases of hemorrhage following abortion, part before and part after the perfect ejection of the conceived products so treated, Auvard had excellent results, as in one case of bleeding after expulsion of the placenta. Also in bleeding after currettage in uterine carcinoma and of the uterine cavity and after extirpation of uterine myomas through the vagina.

Supernumerary Mamma and Nipple.

Hart, of Sydenham (*British Medical Journal*, November 12, 1892) recently attended a woman in her eighth labor, and having occasion to examine the mammæ, found both distended with milk and the left larger than the right. On closer inspection a third breast, about a third smaller than the others, was found immediately below the left and separated from it by a distinct sulcus. The supernumerary nipple was perfect in form, about a fourth smaller than the other two, and in the same vertical plane with the left one. Owing to the pendulous condition of the superior and larger gland on the same side, it appeared at first sight like a mole on its surface. It was surrounded by a pigmented areola, and the lactiferous ducts could be felt running into it. The supernumerary gland secretes milk proportionate in quantity to its size, and has done so in all the previous pregnancies.

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On the Radical Treatment of Certain Cases of Grave Concealed Accidental Hemorrhage.

Storer, of Boston (*Boston Medical and Surgical Journal*, Vol. 77, No. 16), in considering the subject of concealed accidental hemorrhage as an emergency in obstetrical practice, has collected 153 cases. From these cases, of 126 children, ninety-four per cent. were stillborn or died shortly after birth; while of 152 mothers seventy-one died (46.7 per cent.). Of 142 cases of all varieties and degrees, in four craniotomy was done with four deaths; in sixty-three the treatment was expectant, with forty deaths; in nineteen version was done, with eight deaths; in five dilatation alone, with two deaths; in eighteen forceps was used, with four deaths; in seven ergot was given and nothing else done, with two deaths; in twelve the membranes were ruptured, with two deaths; in eight the membranes were ruptured and ergot given, with one death; in one, Porro operation was done successfully; in five the membranes were ruptured and the os dilated without a death. In thirty-seven cases the hemorrhage occurred during labor, of these twenty-one died. In 105 cases it preceded the labor, with a mortality of forty-two. Fifty-seven per cent. of those treated expectantly died. The author recommends active interference in all cases, and favors the Porro operation, speedily executed, in those cases where the cervix is not dilated.

Concerning the Present Position of the Cesarean Section.

Velits, of Pozsony (*Orvosi Hetilap*, 1891, No. 50–52), reports two cases of conservative Cesarean section that he performed for relative indications, with good results for mother and child. One was performed upon a 32 year old II-para with a conjugate diameter of 10.5 cm.; the other upon a 29 year old I-para with the same conjugate diameter. In the first case he operated a few hours after the rupture of the bag of water; in the other with perfectly dilated os. The one child weighed 3,800 gm.; the other 4,000 gm. The first operation lasted 1½ hours, the other ¼ hour. Both cases made uncomplicated recoveries. The uterine wounds were closed with two rows of silk sutures, the silk having been boiled for one hour in 1 : 1000 sublimate solution, then freed of sublimate by washing in ether and preserved in absolute alcohol. The uterus was constricted manually during operation.

Velits has performed in Hungary six Cesarean sections up to the present time, using Sänger's method. He has had but one death (16.66 per cent.) and in this case there was infection previous to operation.

He is a warm supporter of the conservative Cesarean section. He believes the Porro operation to be indicated in carcinoma or myoma of the uterus, in pregnancy in a rudimentary horn of the uterus, as in those cases where the free drainage of the lochia by the vagina is impossible. In osteomalacia he advocates Cesarean section combined with castration. The Cesarean section with ligation of the tubes for the production of sterility he recommends where the possibility of future production of abortion is not possible as by conjugata vera under 7 cm.

Subcutaneous Chloral Injections in Puerperal Eclampsia.

Deshages, of Orléans (*Abeille Médicin*, February 8, 1892), considers the subcutaneous injection of chloral a valuable method of its administration in puerperal eclampsia, where it is impossible to administer it by the mouth and there is a rectal intolerance. From his experience in seven difficult cases, Deshages believes it to be the safest working method of administering chloral. In all cases an initial dose of from 7½ to 15 grains sufficed at once to quiet the patient and to lengthen

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the period between the seizures. The total quantity used was usually from 45 grains to 1 drachm, given either in three doses at intervals of 8 to 10 hours, or following a large initial dose, hourly, 1½ to 3 grains. The largest quantity used was 75 grains. The effect of the large initial dose differs in individuals, according to the depth of the uremic intoxication, the condition of the os, the pains, to the nearness of the delivery. The injections are only to be used in comatose conditions, on account of the severe pain accompanying them, unless morphia or cocaine are added. The strength of the solution should not be greater than 1 : 10, and the syringeful should be very slowly injected.

Deshages has also used this method in the eclampsias of non-puerperal origin, with good result.

True Fetal Skeleton in Dermoid Cyst.

Répin (*Annales de Gynecologie et d'Obstetrique*, August, 1892) exhibited before the Paris Anatomical Society two dermoid ovarian cysts. In one specimen a small tuberous mass sprang from the inner side of the cyst. It was covered with skin and hair, and contained irregular masses of bone and cartilage. In the interior of the cyst of the opposite ovary was found a much larger mass, containing a rudimentary skeleton. The extremities were much deformed, but very distinct. The phalanges and tarsal bones of the right foot and the corresponding bones of the right hand could easily be counted. The cranium was a shapeless mass, including teeth and one salivary gland. The nervous system was represented by the great sciatic nerves. There could be found no viscera in the skeleton, but a coil of intestines lay outside it.

Répin believes that all dermoid ovarian cysts represent rough draughts of an embryo. This is not due to fetal inclusion. One-yolk twins are the origin of inclusion, the allantois of the future parasite penetrating the abdominal cavity of the future autosite or host and contracting vascular adhesions with the autosite's intestines. The parasite is an acardic monster, and is always attached to intestine. Dermoid cysts (often bilateral) cannot be explained by inclusion. Répin believes in parthenogenesis. Segmentation of a virgin ovum is seen in birds, mammals, and even women.

An Enormous Congenital Umbilical Hernia without Skin Covering; Operation; Recovery.

Benedict (*Medical Record*, March 5, 1892), found, in a child he had delivered by forceps, a perfect absence of abdominal wall in the region of the umbilicus for a space of six centimetres in diameter. The abdominal contents appeared only to be covered by parietal, peritoneum, so that the peristaltic movements of the intestines could be readily seen. The color was dark blue. The attachment of the cord was at the lower end of the defect. Simple freshening of the edges and drawing the soft tissues together over the peritoneum did not suffice to close the defect. It was necessary to divide the skin several inches above and below in order to coaptate the edges. The operation was performed fifty-three hours after the birth and lasted fifty minutes. The child bore well the chloroform and the wound united by first intention, with the exception of one spot where the edges separated slightly. The margins of this spot were held together by strips of plaster and united in ten days. The nutrition of the child was not interfered with during the convalescence.

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GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.

ASSISTED BY

WILLIAM A. CAREY, M.D.

Vaginal Hysterectomy in Bilateral Peri-Uterine Suppuration.

Henrotin (*American Journal of Obstetrics*, October, 1892), advocates the performance of vaginal hysterectomy with or without ablation of the appendages in certain cases of pelvic suppuration. In those comparatively simple cases where the abscess can be readily reached and removed by an incision through the abdominal wall, hysterectomy is not appropriate; but there is a large number of cases which can not be successfully dealt with by an incision from above, either in the enucleation of the abscess sac or in the matter of drainage afterward. A non-adherent unilateral or bilateral pyosalpinx had better be subjected to a laparotomy, and a case of pelvic suppuration which has invaded the whole broad ligament and its cellular tissue, becoming limited by the surrounding structures and formed into a circumscribed mass, can usually be relieved by vaginal incision and drainage, or by a laparotomy, according to its location, and the pelvic organs may be left in a satisfactory and useful condition.

But there are cases in which the suppuration is so extensive that the two procedures mentioned above fail to cure, and it is in these cases that removal of the uterus with and without its appendages has been employed. The operation has been successful in certain cases where laparotomy and vaginal incision had failed. In some reported cases these measures had been adopted and the patients had been relieved from the symptoms of active suppuration, and their lives had been saved only to be made miserable from a chronic disease of the uterus, ovaries and tubes. In cases of pelvic suppuration when the damage done seems to be so great that the pelvic organs will not be likely to resume a healthy condition, it is better to perform hysterectomy at once. Drainage can be much more thorough from below than from above, as in laparotomy. The cellular tissue radiates from the uterus, and by its removal in cases of abscess of the pelvis, there is a large cavity formed right in the natural path for drainage of the pelvis. In operating, if the appendages are within reach and can be removed readily, this is done, although in some cases they have been taken away piece-meal. The clamps are left *in situ*, and the vagina is packed with iodoform gauze to prevent infection from without and to protect the parts from the forceps. Pus sacs have probably been opened and drained during the operation, but it occasionally happens that during the second or third day following the operation pus will discharge from some sac which has burst from the effect of pressure from above and laterally and forced its way down through the cavity made by the removal of the womb. French operators report quite a number of cases of hysterectomy performed for pelvic suppuration with excellent results, and the author details a case of the kind operated upon by himself with recovery. The uterus was fixed in a mass of exudate rising on the left side as high as the umbilicus and extending over to the right iliac fossa, completely enveloping the right broad ligament. About twelve ounces of pus escaped from the rectum during the removal of the uterus, and a fecal fistula resulted, which fortunately closed in five days. In conclusion, the author says that vaginal hysterectomy is a proper operation in all cases of pelvic suppuration when laparotomy with removal of the appendages is indicated, and that performed under these circumstances and in this variety of cases it is not more dangerous than laparotomy.

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Drainage After Pelvic Operations as Influenced by Preliminary Curettage of the Uterus and Trendelenburg's Posture.

Pryor (*Medical Record*, November 5, 1892), in a paper upon the above subject, presents a number of objections to the employment of drainage, and suggests methods for its avoidance in some cases. While there are certain cases in which drainage is absolutely required, such a procedure should be limited to those cases alone, and any substitute which promises equally good results, without the disadvantages of drainage, should be adopted. There is a too general adoption of the axiom—When in doubt, drain. The chief disadvantages of drainage are the discomfort of the patient accompanying the attention to the drain (which is not to be considered in cases where drainage is positively indicated), the protracted convalescence and the complications which arise as the result of using a tube or other drainage contrivance. The lymph thrown out around a drain is never entirely absorbed, but results in the formation of rather firm adhesions, which may cause intestinal strangulation. Infection is also liable to occur, with the consequent formation of septic foci and sinuses. But probably the most serious objection to drainage is the liability to ventral hernia. "Drainage must do one of three things —remove a sepsis introduced by a foul operation, or a septic material present in the subject at the time of operation, or a sepsis forming subsequent to the operation." For the first there is, of course, no excuse, except when organs are removed already communicating with the intestinal canal or other septic cavity which cannot be removed. Were it possible to remove diseased organs without evacuating their possibly septic contents, the indications for drainage would be confined to cases in which infection occurred subsequent to operation, or to cases in which the general peritoneal or pelvic cavity is already infected. There are three ways by which infection may occur after operation—lesions to the intestines, openings into a vagina not rendered aseptic, and poison following along the lymph-currents from a case of sepsis to open wounds at the field of operation. In order to avoid the first, place the patient in a position (Trendelenburg) which will enable the operator to see as well as feel the organs concerned in the operation, and protect the intestines by a flat sponge. By these means any escaping pus can be immediately seen and caught before it spreads among the intestines. Bleeding points are also detected. In order to remove a septic focus which might infect through the medium of the lymphatics, curettage of the uterus is practiced as a preliminary to abdominal section. After curetting, the uterine canal is packed with iodoform gauze, and the author claims that to operate after this preliminary uterine treatment assures a clean operation in a clean field, and removes a not infrequent cause for drainage.

A Large Collection of Pus Between the Layers of the Broad Ligament, Complicating Pregnancy.

Hirst (*Annals of Gynecology and Pædiotry*, November, 1892), reports a case of pregnancy advanced to the fifth month, in which alarming symptoms developed. Examination revealed a large tumor alongside of the womb between the folds of the broad ligament. Abdominal section was performed, when the large mass was found to be fluctuating. The tumor contained about two quarts of pus. The sac was stitched to the abdominal wall and thus drained, and the patient recovered. The author is disposed to regard the tumor as a suppurating utero ligamentary cyst, although such a termination of a monolocular broad ligament cyst, which usually contain a clear, limpid fluid, is exceedingly rare.

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Hard Growths of the Uterus.

M. Price (*Annals of Gynecology and Pædiatry*, November, 1892), says that while many of the hard tumors of the womb have varied and entirely different pathological appearances, and seem to have originated from different causes and conditions, yet experience presses the conviction that they all have their beginning in fibroid changes. It must not be forgotten that fibroid disease is not limited to the womb; that it exists in the walls of the heart, cardiac fibrosis, and in numerous other organs and muscles of the body. A careful examination was made of over one hundred hard uterine tumors after removal, to ascertain, as near as possible, the manner of their growth and development. In the true fibroma there is but a trace of muscular fibre and but little connective tissue, and most of that is in the capsule. The vascular supply is almost confined to the capsule, with small vessels running into the tumor. As the tumor increases in size the vascularity of the capsule increases. In the myomatous tumors there is a different arrangement of the blood supply. The vessels are not only larger in the pedicle, but are numerous and tortuous all through the tumor. From the very beginning of the myomatous growth to its maturity, the vascular supply is constantly increasing. The muscular element is readily demonstrated. The growth of these tumors is more rapid than the growth of the true fibroma, and the womb is more symmetrical and softer. The myomatous variety commonly occupies one entire surface of the uterus, while the fibroma is usually multiple, and nodules appear at several different points about the womb, growing in the direction of least resistance, which is usually toward the peritoneal cavity. Apart from certain symptoms which these tumors produce during their development, the great danger lies in their tendency to undergo fatty degeneration or œdematous and malignant changes. A hard tumor may exist for a long period of years without giving rise to very serious trouble, when suddenly it will assume malignant aspects and force the patient to operative measures. The author has operated, by the extraperitoneal method, upon six patients for large fibroid tumors, four of which were cases where rapid sarcomatous changes were in progress.

Periodical Intermenstrual Pain.

Palmer (*American Journal of Obstetrics*, October, 1892), states that he has noticed some half dozen cases in which pelvic pain has occurred during each intermenstrual period for several consecutive years. The pain usually appears about two weeks after menstruation, and lingers from two to ten days. It is located in either ovarian region, or may begin in one side and shoot over to the opposite side. The intensity of the pain has varied considerably, but has been unbearable at times in some of the cases. The author gives the histories of three cases from his own practice, and refers to four similar cases reported by Priestly about twenty years ago. Among these seven women two were sterile, one having been married seven, and the other eighteen years; two women had each one child; one woman had a child, and a miscarriage at the third month, and two women had each two children. Menstruation was quite regular and painless in these cases; in fact, the only time that some of the women were comfortable was during the period of menstruation. Examination failed to detect any uterine lesion sufficient to cause such symptoms, but ovarian disease was positively discovered in two cases, while in the remainder some pathological condition of the ovaries was inferred, from the pain produced, and the sensation of thickening about the appendages gained by digital examination. The author remarks that it is a simple matter to detect gross

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ovarian abnormalities, but that we are not justified in concluding that no pathological condition exists, because we are not able to feel it. A circumscribed induration of the cortex or stroma of either ovary, insignificant anatomically may create pressure on the follicles, including the nerve filaments, and produce local and reflex pain out of all proportion to the actual disease. With a thickened tunica albuginea and alteration in the follicles, it is reasonable to expect impediments to ovulation. The suggestion is offered that in cases like those reported, efforts at ovulation are made from ten to fourteen days prior to the next menstrual period, and that pain results from the attempts of ova to mature in and penetrate the diseased tissues.

The investigations of Leopold prove that ovulation may occur at any time, although it is most common about the time of the menses. The treatment of this condition must be directed to the relief of pain during the attack, and the removal of the cause during the intervals. For the relief of pain the tincture of cannabis indica has been most beneficial. The bromides are serviceable, but opiates are to be ignored. During the intervals of pain alteratives have been employed for long periods of time—mercuric bichloride, potassium iodide, ammonium chloride and aurium et sodium chloride. Local galvanization and applications of ichthyolated boroglyceride, also counter-irritation before and during the periodical attacks of pain, are useful measures of treatment. In severe cases, which are rebellious to faithful medicinal and hygienic treatment, oöphorectomy is clearly indicated.

DERMATOLOGY.

UNDER THE CHARGE OF

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ASSISTED BY

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Treatment of Acne of the Face.

Renault (*Revue Générale de Clinique et de Therapeutique*, June 8, 1892,) in an exhaustive article says that while the treatment is mainly external, one must not be satisfied with this if he wishes a rapid and permanent recovery. The external treatment may be divided into two stages. In the first the face is submitted to a degree of irritation varying in intensity; in the second this inflammation is combated by emollients which have for their end a return of the integument to a normal condition. The selection of the local application depends upon whether the inflammation is slight, moderate or intense. When there is but a disseminated acne a slight excitation of the integument usually suffices. Usually, washing the face with water as hot as can be borne is sufficient—about 104° is the proper temperature. A fine small sponge may be used to apply the water. The water should be first boiled, and allowed to cool to the proper temperature. Before the sponge is used it should be made aseptic by being immersed in a 1-to-1000 bichloride solution. In the intervals the sponge should be kept in the same solution. The applications should be made twice daily, and should be persisted in for some time. In the moderately severe forms it is necessary to employ more active measures. In these cases sulphur ointments are of value. The author suggests the following prescription:

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℞. Vaseline ..... 30 parts,
Precipitated Sulphur ..... 3 parts,
Essence of Roses..... ..... 10 parts.

This ointment should be applied to the face every evening and left there during the night. In the morning the face is washed with tepid water and powdered with starch. Little by little the pustules will disappear, and if the treatment is persevered in there will be a good result. Instead of the ointment one of the following solutions may be used :

℞. Acid Salicylic..... ..... 10 parts,
Ether..... 30 parts.

Or,

℞. Iodoform ..... 4 parts,
Ether ..... 30 parts.

These may be used in the same manner as the sulphur ointment. In the more severe and rebellious cases the face must be rubbed several evenings with the hand smeared with a dark potash soap. The soap which remains on the face must stay there until next morning. The soap may then be washed off with hot water and the face covered with starch. This process must be repeated until the skin is considerably irritated, which will occur usually in about five days. This varies with the fineness of the skin. Sometimes this may cause veritable suppuration of the acne or erythematous and vesicular eruptions. This will necessitate the cessation of the process and the application of emollient ointments or warm water, or starch, or boric acid lotion. Sometimes in the course of five or six weeks, by alternate applications of irritants and emollients, a cure may be effected. When a more or less permanent erythema persists the following prescription may be used :

℞. Precipitated Sulphur,
Glycerine,
Spirits of Camphor,
Water of Roses. āā equal parts.

This may be applied by the aid of a brush, and remain all night in contact with the skin. The author considers the above as the best of the many topical applications. There is a certain amount of induration sometimes remaining, which may be treated either by a fine scarification or by puncture with a thermo-cautery. The general treatment of the patient is important. The physician should acquaint himself with the peculiarities of his patient. Tonics are usually required. The author considers cod-liver oil the one preferable to all others, given in such doses as the stomach will tolerate. In many cases the patients are dyspeptic, and then the digestive functions should be carefully attended to. It is also necessary to regulate the genito-urinary functions. Frequently disorders exist in these functions which can be discovered only by the sagacity of the physician.

Three Interesting Cases of Bromide Eruption.

These three cases of bromide eruption, reported by T. Colcott Fox (*British Journal of Dermatology*, September, 1892), occurred in infants aged, respectively, six, nine and ten months. In the first the eruption appeared nine days after vaccination, upon the cheeks, arms, fore-arms and lower extremities from the loins to the ankles. Upon the cheeks were a few miliary pustules, and numerous patches of confluent pustules, varying in size from a split-pea

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to a finger-nail, seated upon an infiltrated base somewhat elevated, many of them being covered with a dark crust. The lesions upon the extremities were of a similar character, but upon the legs they were more closely arranged and formed considerable patches. In this latter situation beginning papillary overgrowth resembling condylomata was noticed, and in one or two places tumors like those seen in mycosis fungoides were formed. On the left buttock a large irregular hole had been formed by the sloughing of a subcutaneous mass of inflammatory tissue. Near this was a solid subcutaneous mass the size of a half-crown. Although the baby was pale and fretful, no constitutional disturbance was evident. Bromide of potassium being suspected as the cause of the eruption, inquiry was made as to whether this drug had been employed, but the writer was assured that the infant had taken no medicine except that which had been given for the skin trouble. It was learned upon further inquiry, however, that the mother had been taking twenty-five grains of bromide of potassium daily for three months. Upon the suspension of the drug the eruption upon the infant, which had been attributed to vaccination by the parents, soon began to undergo involution.

In the second case the eruption was situated upon the cheeks and chin and the inner and posterior surfaces of the extremities. It consisted of thickly-crusted patches on an infiltrated elevated base surrounded by a ring of small pustules. The bromide of potassium had been given in "small doses" for convulsions five weeks previously; the eruption, however, did not make its appearance until about a fortnight after the administration of the drug had been stopped.

In the third case, bromide of potassium had been given for "fits" during a period of six months. The eruption began as small pustules, resembling those of varicella, which increased peripherally until they reached the size of a cherry, resembling at this stage the bullæ of pemphigus, the contents, however, being thick and cheesy. Upon rupture of the lesions they were seen to be solid papillomatous growths. The eruption occupied the head, arms, trunk and lower extremities.

Lupus Erythematosus.

In a paper (*British Journal of Dermatology*, November, 1892) read before the Second International Dermatological Congress, held at Vienna, Malcolm Morris discusses the nature of lupus erythematosus and its relation to lupus vulgaris, and suggests that the term lupus be abandoned, offering the term *erythema atrophican* as a substitute. His conclusions concerning the malady are as follows: The conception of lupus erythematosus as a neoplastic process may be looked upon as entirely exploded, there being neither clinical nor microscopical evidence to support it. The inflammatory nature of the process is clearly shown by the microscopic appearance of the affected tissue; the process has no necessary connection with the sebaceous or sweat-glands, but begins in the blood-vessels. As to the cause of the inflammation, nothing is known with certainty. The doctrine that the tubercle bacillus is the exciting agent, must be put aside as "not proven," the anatomical and bacteriological evidence being absolutely against it, and the clinical evidence —relied on by some—resting on no sure foundation. With regard to micro-organisms of other kinds, their presence in the lesions of lupus erythematosus is very doubtful, and even if this be confirmed, their causative relation to the process would still have to be shown. At present, therefore, lupus erythematosus must be regarded as a chronic inflammation of the skin, local in its origin and generally local in its course, unconnected, so far as our present knowledge goes, with any underlying constitutional state.

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Multiple Cysticercus of the Subcutaneous Tissues.

An interesting case of this rare malady is reported by Pye-Smith (*British Journal Dermatology*, November, 1892), occurring in a man, 30 years of age, who was admitted to the wards of Guy's Hospital, April, 1892. The disease began as a small lump upon the left arm, which was shortly followed by growths of a like kind upon the neck, shoulders, face, arms and legs. No less than fifty of these subcutaneous nodules were counted upon the face, neck, trunk and extremeties, varying in size from a pea to a marble. The tumors were painless, and the skin over them freely movable. The nature of the disease not being apparent, and the number of the nodules increasing rapidly; two of the lesions were excised for the purpose of determining their nature. Both the tumors were small cysts, containing a white object, which was found, upon examination with a low power, to be a cysticercus.

A possible explanation of the origin of the disease is to be found in the fact that the patient was in the habit of frequently eating unwashed and uncooked watercress.

Multiple Sarcomata: History of a Case Showing Modification and Amelioration of Symptoms Under Large Doses of Arsenic.

A striking example of the occasional beneficial effects of arsenic administered internally in multiple sarcoma, is reported by Sherwell (*American Journal of the Medical Sciences*, October, 1892):

The disease, which occurred in a man 39 years of age, began as a large ulcerating tumor upon the posterior portion of the left thigh. The excision of this primary tumor was soon followed by the appearance of others in various regions of the body. After some delay, the largest of these growths were removed, and the internal administration of a mixture of Fowler's and Donovan's solutions —four parts of the former to one of the latter—was commenced, the initial dose being eight drops four times a day. The dose of the mixture was rapidly increased until the patient was taking twenty-six to thirty drops four time a day. Under this treatment many of the small tumors, and some of the larger ones, disappeared; the patient steadily improved, and, after a short time, returned to his home, passing from the control of the author. Treatment was now neglected, and within a short time new tumors appeared, multiplying rapidly. The resumption of the mixture of Fowler's and Donovan's solutions was again followed by disappearance of the growths, so that within two months they had entirely disappeared, except a half dozen upon the face and scalp. After a time treatment was again neglected, and the patient died of exhaustion.

Marked tolerance of arsenic was one of the features of the case, the toxic symptoms, which appeared only upon the exhibition of 25 to 30 drops of the solution several times a day, rapidly disappearing upon its suspension for a few days.

Untoward Effect of Gallacetophenone.

James reports (*British Journal of Dermatology*, November, 1892), a case of severe dermatitis following the use of a five per cent. ointment of this drug, which was being employed in the treatment of an old psoriasis. A ten per cent. ointment, made with an impure preparation, which was first used, gave good results; but this having been exhausted, a new ointment, containing five per cent. of the pure drug, was applied. Within a few hours the skin, to which this ointment had been applied, became violently inflamed and extremely painful. Upon the hands the inflammation followed the typical course of charo-pompholyx.

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An Epidemic of Baldness in Spots (Alopecia Areata?)

Putnam (*Archives of Pediatrics*, August, 1892) reports an epidemic of baldness, occurring in an asylum for girls, which presented the characteristics of alopecia areata, the bald spots being smooth, white and devoid of scales and broken hairs. The first case in the institution was observed in January, 1891, the second in the following March; but it was not until June that the disease became common in the school. Sixty-three out of sixty-nine inmates of the institution, from three to fourteen years of age, were affected. In the latter part of June six girls, who had as yet shown no evidence of the disease, were sent to board outside of the school, and these escaped. Likewise four older girls, who wore the hair long, together with the matrons of the asylum, remained free from the malady. Repeated microscopic examination failed to show any micro-organisms; atrophy of the root of the hair being the only abnormality present.

Tinea Circinata of the Palms of the Hands and Soles of the Feet.

Djélaleddin Monkhtar (*Annales de Dermatologie, et de Syphiligraphie*, August, 1892) reports twenty-five cases of this interesting affection, many of them personal, and reviews the history and clinical course of the disease. The following are the writer's conclusions: Tinea may occupy the palms of the hands and the soles of the feet, and not rarely may limit itself exclusively to these regions. The disease may be primary or secondary. In the former case the parasite is implanted upon previously sound epidermis; in the latter another disease has prepared the soil for the growth of the trichophyton. The palmar and plantar localization of the tinea offers special interest, because of the difficulty of diagnosis. This difficulty arises from the great analogy which tinea of these regions presents with other affections of the skin having the same seat (dysidrosis, syphilis). Apart from the microscopic examination, which is decisive, the clinical peculiarities of the disease are of diagnostic value.

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MISCELLANEOUS.

A NEW PROFESSORSHIP IN THE JEFFERSON COLLEGE.

At a meeting of the Board of Trustees held on Wednesday, November 30, 1892, Dr. G. E. de Schweinitz was on the unanimous recommendation of the Faculty, elected Clinical Professor of Ophthalmology in the Jefferson Medical College. At the time of election Dr. de Schweinitz was Professor of Ophthalmology in the Philadelphia Polyclinic and Lecturer on Medical Ophthalmoscopy in the University of Pennsylvania.

ANNOUNCEMENT.

Dr. J. Howe Adams resigned his position on the Editorial Committee of the University Medical Magazine, November 15, 1892. Dr. A. A. Stevens was elected to fill the vacancy. The editorial office has been transferred to 214 South Fifteenth Street, where all contributions, letters and communications relating to the editorial department should be sent.

BOOK NOTICES.

Text-Book of Ophthalmology. By Dr. Ernest Fuchs, Professor of Ophthalmology in the University of Vienna. Authorized Translation from the Second Enlarged and Improved German Edition. By A. Duane, M.D., Assistant Surgeon Ophthalmic and Aural Institute, N. Y.

The German edition of Dr. Fuchs' work has been before the public since 1891. The present edition in English affords the opportunity to those not familiar with German, of acquainting themselves with this truly masterly work. In the preface to the German edition Fuchs states, "The school of Arlt, from which I came is not repudiated in these pages. Arlt was, of all men, distinguished by his clinical perception, which enabled him to comprehend morbid appearances with all their peculiarities, and to describe them in a manner that was unexcelled." This commentary on his illustrious teacher, who has laid such a debt upon his successors in ophthalmology, may be applied to himself. The work of Dr. Fuchs throughout its whole extent is characterized by the admirable method with which he classifies his subject; the lucid and faithful descriptions with which he invests the typical forms of disease, and the depth of his investigations into their

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etiology. He traces with unerring hand the connection between the clinical symptoms and their pathological origin, with a boldness that none could assume without complete knowledge of the subject. The work can in no sense be considered a compilation; and yet is as exhaustive as is possible with the limitations of its space. Like his predecessor Arlt, he devotes most of the work to the consideration of the diseases of the anterior segment of the eyeball, as they are most common, the most accessible to ordinary observation and the most satisfactorily treatment. As he aptly phrases it, "in diseases of the posterior segment of the eyeball, the diagnosis celebrates a triumph oftener than the herapeutics." The cornea, conjunctiva and iris are hence very minutely discussed. The anatomy and histology of the eyeball find their proper recognition, which is not always the case in text books. Refraction is rather briefly considered. The work is full of valuable information both to the student and practitioner. The rich experience and scientific spirit of Dr. Fuchs lend to his work a value that will be gratefully appreciated by every earnest seeker for knowledge. It is not

> "A tiny speck of original observation
> Swamped in a dreary sea of watery compilation."

Dr. Fuchs is not only an author, he is also an authority. The task of rendering this work into English has been performed by Dr. Duane, in a very satisfactory manner. Much care has been bestowed on the conversion into English, of the strict sense of the original. The book can be heartily commended as a reliable exponent of the science of ophthalmology in its most advanced state.

EPITOME OF MENTAL DISEASES. By JAMES SHAW, M.D., Qu. Univ. Irel. New York: E. B. Trent, 1892.

In the preface of this useful little volume the author recommends it as "a practical book of reference for general practitioners, and to serve students as an introduction to the more comprehensive treatises." It might well be compared to an analytical key which is used by botanists in tracing a plant to its proper family, genus and species. Used as such it will be of value, especially to the practitioner who has a mental case in which he has carefully observed the symptoms and which he desires to trace to its proper position among the various forms of psychoses. To the young student it can scarcely be recommended, as he would find himself in much the same position as the tyro in botany who endeavors to trace a plant by means of the key, before he has thoroughly mastered the elements of botany. He would be as liable to trace it to a wrong class as to the proper one. Given a physician, however, who is familiar with the symptoms presented, in a given case, the volume will probably be a great aid in determining its proper position. The chapter on prognosis is valuable, giving in terse sentences what can be gathered from larger works only by much reading. The same remarks are applicable to the chapter on pathology, which is unusually full for a book of this character. The chapter on therapeutics and hygiene is valuable, each of the sedative hypnotics being treated of concisely, yet fully enough to be useful. It also deals with

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the treatment applicable to different forms of insanity which is convenient and striking. The chapter upon legal regulations is necessarily of no practical value in this country, as it deals with English law. It might have been omitted from an American edition. In a word if the volume is used as a reference and not as a text-book, it will find its proper place. The difficulty being that men who are accustomed to do but little reading may be tempted to use the book as their only guide. If they do so they will probably fall into error.

NINE HUNDRED AND FORTY-FOUR QUESTIONS ON ANATOMY. By M. LEVIS and W. HENRY PRICE, M.D. Philadelphia: University of Pennsylvania Press, 1892.

This little book of 110 pages represents the questions which have been asked during the past five years in final examinations on anatomy in the leading medical colleges of Philadelphia. The authors did not intend to present it as a compend, but merely as an aid in brushing up for the final examination. The various structures of the body are concisely considered, and under the head of Miscellaneous many surgical questions are given. A table on the Association of Anatomical Facts by Numbers is most excellent. The book closes with a table of hernia coverings and one of the centres of ossification. The typhography is very good. We take great pleasure in recommending this book and think it would prove a valuable aid to all that wish to obtain quickly a theoretical knowledge of such an extensive subject as anatomy.

BOOK ON THE PHYSICIAN HIMSELF AND THE THINGS THAT CONCERN HIS REPUTATION AND SUCCESS. By D. W. CATHELL, M.D. Philadelphia: The F. A. Davis Co., 1892.

This work has now reached its tenth edition. To many of our readers the book must be already familiar. To these no word of recommendation is needed from us; but to those who have not read the work, and especially to beginners, we would urge an early and careful study of its pages. The recent medical graduate may be familiar with the most modern views in pathology or with the just-discovered bacillus, but unfortunately his patients will not judge him by these accomplishments, and to be a successful practitioner of his art, he must combine certain other qualities not taught in the medical school. It is to supply these that Dr. Cathell has written the present volume To some, much that is said would come naturally, while to most of us, only after years of experience which may have been paid for dearly. The book may be considered as an elaboration of the "Code of Ethics," advising as it does, the proper course in almost every position in which the physician may be placed. We must dissent from certain statements, but these few instances do not detract from, nor invalidate the great mass of sound counsel given. It is intended, of course, to apply the advice only in so far as it may be in harmony with each individual case and with the prevailing customs of the time and place.

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Dr. Cathell is to be congratulated upon the thorough manner in which he has accomplished his object and the happy style in which it is presented. In the present revision the author has added much new material that has been suggested by greater experience and further reflection.

THE ESSENTIALS OF HISTOLOGY. By EDWARD A. SCHÄFER, F.R.S., Jodrell, Professor of Physiology in University College, London. New (third) edition. In one octavo volume of 311 pages, with 325 illustrations. Philadelphia: Lea Brothers & Co., 1892.

This work now appears in its third edition, revised and enlarged. It has been used for some time past as the text-book on its subject in a large number of colleges, and is so well and favorably known by teachers and students of histology that a discussion of the book seems unnecessary.

The matter is systematically arranged into forty-five lessons for the careful study of the minute anatomy of the various tissues of the body. Unimportant details are omitted, the matter is clearly and concisely presented, and the large number of cuts employed to illustrate the text recommend this book to all interested in histology. An appendix containing directions for the preparation of sections for microscopic study is added.

For the proper appreciation of physiology and pathology, an intimate acquaintance with histology is necessary, and Professor Schäfer has given us a book eminently fitted for imparting this knowledge.

MEDICAL MICROSCOPY. A GUIDE TO THE USE OF THE MICROSCOPE IN MEDICAL PRACTICE. By FRANK J. WETHERED, M.D., M.R.C.P., Demonstrator of Practical Medicine to the Middlesex Hospital Medical School, etc. Philadelphia: P. Blakiston, Son & Co., 1892.

As an aid in diagnosis at the present day, the microscope is indispensable. In the volume before us, Dr. Wethered has endeavored to make the use of this instrument of precision comprehensible to all. The matter is sufficiently elementary to meet the requirements of the beginner, and yet is so full and complete as to serve all the purposes of the practitioner; even the special microscopist will be repaid for a study of the book.

After a brief description of the microscope and the various accessories employed, chapters follow on the different methods of hardening tissues, of embedding, section cutting, staining and mounting. Many processes are given, and those that are most satisfactory are pointed out. To the general practitioner the chapters on the examination of urinary deposits, of the feces, of sputum and of vomited matters will be found most useful. Among other subjects considered are the examination of tumors, of discharges and contents of cavities, of the blood, of

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food and water and of cutaneous parasites. A chapter on bacteriological methods closes the volume. In our examination of the book we have found the teaching safe and reliable, and do not hesitate, therefore, to recommend it to all seeking information on "Medical Microscopy."

NAPHEYS' MODERN THERAPEUTICS. Ninth Edition. Vol. I. By ALLEN J. SMITH, M.D., and J. AUBREY DAVIS, M.D. Philadelphia: P. Blakiston, Son & Co., 1892.

The authors are to be congratulated upon the very satisfactory manner in which they have revised this volume, and the amount of new matter incorporated. The subjects being arranged in alphabetical order can be conveniently referred to. The notes upon remedies which follow the full quotations from the various authors are of value. The physician who desires to obtain prescriptions only, can be satisfied to the full. He who wants to learn the opinion of the profession upon any given subject (and the best authors are quoted) can be likewise satisfied. Being suited for the two large classes of practicing physicians it should have the large sale of its predecessors, and this sale will be merited.

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UNIVERSITY
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REMARKS ON THE PATHOLOGY OF THE BLOOD.[1]

By Frederick P. Henry, M.D.

Of Philadelphia, Pa.

Our only criteria of disease are alterations of structure and function, but in this Society the term "pathological" is necessarily limited to the former. My remarks will, therefore, be chiefly confined to certain alterations in the visible constituents of the blood which we have learned, by experience, to associate with definite clinical phenomena. Incidentally, I will refer to certain structural changes in various tissues which are either manifestly or presumably secondary to those of the blood.

The diseases which I shall briefly discuss are comprehended under the generic term "anemia," which signifies a diminution in the number or value of the red blood corpuscles. We recognize primary and secondary anemias, or, as some prefer to call them, idiopathic and symptomatic anemias. My remarks refer solely to the primary forms of anemia.

By a primary anemia I understand an affection in which the initial lesion is seated in the blood itself, or in one of the organs, universally recognized by hematologists as hematopoietic or blood making. These organs are the spleen, the lymphatic glands and the bone marrow.

The type of primary anemias is chlorosis, because, in this disease, the primary changes are those of the blood, all others being secondary to the alterations in this fluid. According to many hematologists, pernicious anemia is entitled to the same distinction, but I will endeavor to prove that this claim has not as yet been substantiated.

Besides chlorosis and pernicious anemia, the primary anemias include the various forms of leucocythemia, lymphatic anemia or Hodgkin's disease, and splenic anemia.

Many years ago, when the study of blood diseases was wofully

[1] A paper read before the Pathological Society of Philadelphia, December 23, 1892.

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lacking in precision, the term pseudo-leukemia was introduced and applied to cases in which, with a normal number of white blood cells, the lesions were identical with those of leucocythemia. In my opinion this term should be discarded as one serving merely to complicate an already intricate subject. An affection of the blood is either leukemic or non-leukemic. We are quite as well justified in speaking of pseudo-pneumonia or pseudo-scarlatina as of pseudo-leukemia.

I will discuss very briefly the pathological anatomy of the primary anemias in the following order: (1) Chlorosis; (2) Pernicious Anemia; (3) Leucocythemia; (4) Lymphatic Anemia or Hodgkin's Disease; (5) Splenic Anemia.

CHLOROSIS.—Virchow endeavored to place chlorosis upon a distinct anatomical basis by the demonstration that, in fatal cases of this disease, there is often found an imperfect development of the aorta and arterial system generally. He has found the aorta of a full-grown woman so small as barely to admit the little finger whereas, normally, it should admit the thumb; and with this contraction of the lumen of the vessel its coats were observed to be much thinner than normal. He regarded this condition of the vessels as congenital, and the importance of the observation depends chiefly upon the fact that the blood vessels and the blood corpuscles are both derived from the same embryonic layer, the mesoblast: an imperfect evolution of the one probably entailing the same condition in the other. In short, Virchow regards chlorosis as due to a congenital predisposition to anemia. I have no doubt that this may be true of such cases as are distinguished by an obstinate tendency to relapse, as well as of those that run a fatal course. Such a condition as that described by Virchow—a condition of imperfect development of the vascular system—would doubtless give rise to grave disturbances of nutrition which might lead to a fatal issue, but chlorosis is not, as a rule, a fatal disease, the great majority of cases, under appropriate treatment, ending in recovery; and with reference to these cases there is no proof of a stunted state of the blood vessels. The only constant anatomical characters of chlorosis are those of the blood itself, and even these changes are not uniform. The researches of Duncan, in 1867, first established the fact that, in well-marked cases of chlorosis, the number of red corpuscles might be normal while their percentage of hemoglobin was greatly reduced, and this anomaly was for a long time regarded as the distinguishing mark of chlorosis. It has since been established that this view of the blood change in chlorosis is altogether too narrow, and, at the present day, it is well known to those who have studied this question that, in chlorosis, the changes in the blood may be at least three-fold:

(1) The blood corpuscles may be of normal size and number, their

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only change being a deficiency of coloring matter; (2) they may be diminished in size and normal in number and in percentage of coloring matter; (3) they may be diminished in number with diminished, normal or, perhaps, increased percentage of hemoglobin.

From the above facts it is manifest that there is nothing uniform in the blood changes of chlorosis, so that an attempt to classify it as a distinct disease from the standpoint of the blood changes must result in failure. The essential fact is that the percentage of hemoglobin is reduced in this affection, but this is common to many other forms of anemia. It has been stated by Immermann that chlorosis differs from all other forms of anemia in that while the red corpuscles may present the various changes above mentioned, the albuminous substances of the serum are present in that fluid in normal or increased amount. This has certainly been proved to be true in a few cases by chemical examination, but it has not yet been shown that the same may not be true of other forms of anemia.

Turning from the blood to the other organs of the body, we find the same want of uniformity in the changes which they present. The heart has been found abnormally small in some cases, abnormally large in others, while the organs of the genital system, which are popularly supposed to be particularly affected in chlorosis, have been found imperfectly developed in some cases while in others their development has exceeded the average normal limits.

I have elsewhere defined an independent disease to be one which rests upon a constant anatomical basis or is invariably produced by the same specific agent.[1] If this definition is correct, chlorosis cannot be regarded as an independent disease. I admit that the definition to which I refer is an incomplete one. Much may be said in favor of the view that a uniform *ensemble* of symptoms may constitute a disease, apart from uniform lesions, but in this Society our discussions are limited to lesions.

Pernicious Anemia.—The blood changes of pernicious anemia are more profound than those of any other disease. In the first place, the quantity of the blood is so much diminished that it is often with great difficulty that the requisite amount—a drop or two—is obtained from the finger for examination. Even the gross appearance of the blood as it flows from the puncture is quite diagnostic. It is of a watery consistence, and of a pale pink color tinged with yellow. Its appearance has been aptly compared to that of water in which beef has been washed. On counting the corpuscles their number is found to be extraordinarily reduced. To give an idea of the diminution of the red corpuscles in pernicious anemia, I will compare the state of the blood in this disease

[1] Transactions Association of American Physicians, Vol. IV.

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with that found in cases of cancer of the stomach. I know of no disease outside of the so-called blood diseases, in which the "*cachemia*" is so profound as in gastric carcinoma, and yet the number of red corpuscles in that affection never reaches so low a point as is commonly attained in pernicious anemia.

In a case of cancer of the pyloric end of the stomach in which I examined the blood on February 7, 1888, I found the number of the red corpuscles to be 2,400,000: *i. e.*, forty-eight per cent. of the normal; whereas, in pernicious anemia I have found 525,000 (10.5 per cent.) in one count; 560,000 (11.2 per cent.) in another; and 315,000 (6.3 per cent.) in a third. There is no other affection in which the number of red corpuscles is reduced to figures which can be compared with these. With this extraordinary reduction in the number of these bodies there goes an increase of their size, many of them being double the size of the normal red corpuscle. This increased size of the red corpuscles might, perhaps, be regarded as a conservative provision of nature by which they are enabled to carry more hemoglobin than would be contained in an equal number of corpuscles of normal size. Be this as it may, it is certainly true that, in the blood of pernicious anemia, there is often a larger percentage of coloring matter than of red corpuscles. This fact, however, is sometimes susceptible of another explanation. The blood of pernicious anemia often contains immense numbers of minute bodies resembling "small red-tinged, fat globules," to which attention has been particularly directed by Eichhorst. These minute bodies are not counted among the red corpuscles, but undoubtedly contribute toward increasing the percentage of coloring matter.

Another change undergone by the red corpuscles in this disease is alteration of shape—"poikilocytosis." This change is a constant one, but is not peculiar to pernicious anemia. I have recently seen it in a typical case of chlorosis, and it has been observed in cases of cirrhosis of the liver, and in other affections.

The other anatomical alterations of this disease are secondary to those of the blood, and consist principally of fatty degeneration, hemorrhage and pigmentation. The fatty change is most marked in the heart, especially in the left ventricle, and is particularly prominent in the papillary muscles. It occurs in the form of zigzag lines easily seen by the naked eye, which are known as "tabby mottling," a name given hem by Dr. Quain. Fatty changes may also be observed in the lining membrane of the arteries and in the cells of the capillary vessels.

The most constant seat of hemorrhage is the retina, and this fact is one of great diagnostic significance. It is said that the hemorrhagic spots are much more numerous, as a rule, and smaller than the extravasations of albuminuric retinitis. After the retina, the most frequent

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seats of hemorrhage are the membranes of the brain and the serous membranes generally, and the mucous membranes of stomach and lungs. Petechiæ and ecchymoses of the skin are rare.

The third principal secondary change to which I referred is pigmentation. It is undoubtedly the most important of all the anatomical alterations of pernicious anemia, and for this very reason I will postpone its consideration until the last.

It was suggested by Prof. Pepper in 1875 that the origin of pernicious anemia might be traced to certain changes in the marrow of the bones, which virtually consist in a return of this tissue to its fœtal condition. This view of the pathology of the disease attracted considerable attention, but it has since been shown that in many cases the marrow is perfectly normal. It is now believed that the changes occasionally observed in the marrow are secondary to the altered state of the blood, for they have been observed in other diseases attended with great anemia, such as carcinoma of uterus, rectum and breast.

It is, I think, highly probable that important changes have often been overlooked in the bodies of those dying with the symptoms of pernicious anemia. For example, in a case reported by Prof. Osler and myself[1] in which every symptom of pernicious anemia, including retinal hemorrhages, was present, we found, at the autopsy, an atrophy of the mucous membrane of the stomach so extensive that not a single normal tubule could be found. To a practiced eye, even without the microscope, it was evident that a certain amount of atrophy was present, but no idea of its extent could have been obtained without a thorough microscopic examination.

Lichtheim[2] has recently called attention to the frequent occurrence of spinal degenerations, espcially of the posterior columns, in cases of pernicious anemia. "The symptoms of this condition are masked by others dependent upon the profound anemia, so that attention is rarely directed to them. In none of the cases examined—their number is not stated—was the cord found in a normal condition. In one-half of them the only morbid change consisted of small submiliary, sclerotic foci, shown by the microscope to have their origin in apoplectic extravasations. In the other half there was widespread degeneration of the posterior columns. The columns of Clarke and the posterior nerve-roots were never involved. The condition is undoubtedly secondary, precisely similar changes having been observed by Lichtheim in a case of splenic leukemia."[3]

These interesting changes were, I believe, first detected in this country in a case under the care of Dr. Morris J. Lewis. The micro-

[1] American Journal of the Medical Sciences, April, 1886.
[2] Berliner klin. Wochenschr., October 14, 1889.
[3] F. P. Henry, in Sajous' Annual of the Universal Medical Sciences, Vol. II, 1890.

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scopic examination was made by our fellow-member, Dr. Charles W. Burr, who has in his possession several slides from that and other cases which clearly illustrate this spinal lesion.

The adipose tissues of those who have died of pernicious anemia are often found of a deeper, richer yellow than normal. The muscles, also, are generally of a deep-red color, and the abdominal organs, especially the liver, are sometimes decidedly darker than under normal circumstances. These facts, especially the dark color of the abdominal viscera, have been used to support the theory that the cause of pernicious anemia is to be found in an increased destruction of the red corpuscles, for, as is well known, all the pigments of the economy are derived from these bodies.

In 1876 Quincke demonstrated a great excess of iron in the liver of those who had died of pernicious anemia, and this observation was confirmed by Rosenstein and Peters. It is probable that the dark color of the muscles and the deep-yellow color of the adipose tissues in this disease are due to an excess of iron. It was at first objected that the iron in the liver was derived from that administered to the patient, but it has been clearly proved that this is not the case. The amount of iron in the liver appears to be practically uninfluenced by the medicinal administration of this substance.

Quincke's observations do not seem to have attracted the attention they deserve, but this was doubtless, in part, due to the fact that he was not positive in his opinions as to the source of the iron. He thought it might have been derived from preparations of that metal administered to the patient.

In 1888, Dr. W. Hunter, in a series of articles in the *British Medical Journal*,[1] not only confirmed Quincke's discovery, but showed that the iron in the liver is deposited in a special manner, being contained, for the most part, in the liver cells, and in those of the outer and middle zones of the acini. The central cells are generally in a state of fatty degeneration and atrophy, and often fail to give any iron reaction.

It is impossible, in the limits of this paper, to discuss the careful steps by which Hunter arrived at the conclusion that pernicious anemia is a special hemolytic process. It must suffice here to quote the last of his "summary of results:" "In pernicious anemia the seat of disintegration is chiefly the portal circulation, more especially that portion of it contained within the spleen and liver, and the destruction is effected by the action of certain poisonous agents, probably of a cadaveric nature, absorbed from the intestinal tract."

Hunter has also called attention to the dark color of the urine in pernicious anemia, and has proved it to be due to the presence of path-

[1] September 22, September 29, October 16, 1888.

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ological urobilin, a substance known to be "derived from the disintegration of hemoglobin." I observed an unusually dark color of the urine in a case of pernicious anemia several years before Hunter's publication, but did not ascertain its cause. It struck me simply as a remarkable fact that with so few red corpuscles (between one and two million to the cubic millimetre) the urine should be so deeply colored.

The case in question was a gentleman, a patient of Dr. Weir Mitchell, whose blood I examined on several occasions. I called Dr. Mitchell's attention to the appearance of the urine, and he, like myself, was struck with it.

The proofs in favor of the view that pernicious anemia is associated with increased hemolysis are certainly convincing. Hunter's observations have been confirmed from various sources, and especially in Philadelphia, by Drs. Griffith and Burr,[1] in a paper distinguished by close thinking and careful research. I accept their conclusions, and those of Hunter which they confirm, that pernicious anemia is distinguished by increased hemolysis, but I think it is going too far to say that it presents no evidence of imperfect hemogenesis.

I do not see how such capable observers as Griffith and Burr can deny the evidences of imperfect hemogenesis in pernicious anemia. The large, flabby, misshapen red corpuscles of pernicious anemia certainly present anything but a healthy aspect. It cannot surely be argued that these remarkable appearances are the result of a struggle to escape destruction while running the gauntlet of the liver.

In addition, numerous nucleated red corpuscles are often present in the blood of pernicious anemia, and every one acknowledges such corpuscles to be embryonic.

Again, the red corpuscles of pernicious anemia are often possessed of ameboid movement, a fact to which attention has been called by Hayem,[2] and which I have myself observed. This property is characteristic of the lower order of cells, the leucocytes.

Finally, Rindfleisch, who has made a careful study of the marrow in two cases of pernicious anemia, concludes that the disease is due to defective hemogenesis. He bases this opinion upon the absence of elements which he and others regard as transition forms between the red nucleated marrow cells, which were unusually large and abundant in his cases, and the fully developed red corpuscle.[3]

In view of the above-mentioned facts, it seemed to me that the evidences of defective hemogenesis in pernicious anemia are, at least, as strong as those of increased hemolysis.

[1] Medical News, October 17, 1891.

[2] La Semaine Médicale. February 26, 1890.

[3] Vide Münchener med. Wochenschrift, June 3, 1890: also Virchow's Archiv, Bd. 121, 1890, p. 17.

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LEUCOCYTHEMIA.—My remarks upon the remaining forms of primary anemia must be of necessity brief and imperfect.

In leucocythemia the blood change never exists independently, but is always associated with anatomical alterations of spleen, lymph-glands or bone marrow. Accordingly, three forms of leucocythemia are commonly spoken of: A splenic, a lymphatic and a myelogenic. The splenic form is, as its name implies, associated with disease of the spleen, and, according to some authorities, this is the only genuine form of leucocythemia, the changes sometimes observed in lymph glands and bone marrow being, in their opinion, secondary to those of the blood.

The spleen is often enormously enlarged, and may extend downward into the false pelvis, and forward as far as, or even beyond, the median line. It has been more than once mistaken for an ovarian tumor. Its peritoneal covering is often the seat of inflammation which gives rise to marked thickenings and opacities and adhesions to neighboring organs. The tissue of the organ is much firmer than normal, and its cut surface is smooth, closely resembling the cut surface of the liver. Hemorrhagic infarctions are often found in the substance of the organ. Under the microscope no changes except those of simple hypertrophy can be detected.

In a certain number of cases, it is said (by Fagge) in about one in every three, the lymph glands are enlarged, and here also under the microscope no changes but those of simple hypertrophy are present. Their consistence is generally soft, sometimes almost fluctuating, and their color white, yellow, gray; or, as in the case of the bronchial glands, dark purple or black, from pigmentary deposit.

The changes in the marrow are analogous to those in the spleen and lymph glands, and consist of an enormous accumulation of leucocytes, which gives to the tissue a purulent appearance.

Alterations in other than lymphatic organs are secondary to the condition of the blood, and consist in the formation of lymphatic or adenoid tissue, either as a diffuse infiltration or in nodular masses resembling miliary tubercles. The liver and kidneys are the organs chiefly affected, and the former may be so greatly enlarged as to reach the crest of the ilium. The peritoneum may be covered with small nodules which, under the microscope, are seen to possess the same structure as the lymph glands, viz., a reticular tissue enclosing leucocytes in its meshes. These same deposits of lymphatic tissue have also been observed in the retina, in which tissue, also, hemorrhages are quite as common as in pernicious anemia. Retinal hemorrhages were observed by Gowers in four out of five cases.

The essential anatomical alteration in this disease is the increase,

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sometimes enormous, in the number of the white blood cells. The red are correspondingly reduced, but their number is not so small as in pernicious anemia, being seldom lower than fifty per cent. of the normal. With reference to its volume, the blood of leucocythemia is in marked contrast to that of pernicious anemia. In the latter disease the volume of the blood is so reduced that it is often a matter of difficulty to obtain a drop from the finger for microscopic examination. In leucocythemia, on the other hand, the vessels are not only well filled, but there is sometimes a state of increased vascular tension. After death, the cavities of the heart have been found dilated and the vessels abnormally filled with blood, so that the condition of the blood in this disease has been termed "leukemic plethora."

I leave to Dr. Stengel, the co-referee in this discussion, the description of the minute changes in the white corpuscles, which only become apparent when these bodies are stained by certain well-known methods.

No well-marked case of leucocythemia can escape detection if the blood is properly examined. It is evident at a glance that the white cells, as a whole, are abnormally increased in number; but it is quite another thing to determine the relative share of the different varieties of white cells in this increase. It is well known that there are, in normal blood, various kinds of white cells, which may be classified either morphologically, or in accordance with their reactions to various staining substances. Morphologically we recognize small and large lymphocytes, both of which are mononuclear, polynuclear leucocytes, and mononuclear transition forms. According to the second method of classification, the white cells are divided with reference to the affinity displayed by their protoplasmic granulations for certain coloring matters. The latter is the classification generally adopted by hematologists, whose leader in this line of research is, confessedly, Ehrlich. Owing to the researches of this observer, an entirely new nomenclature has arisen, and we now speak of cells that are eosinophile, basophile, neutrophile and amphophile. These terms are largely self-explanatory, but their precise significance will appear in the course of Dr. Stengel's demonstrations.

In normal blood the great majority of the white cells are neutrophile, whereas in leucocythemia the basophile and eosinophile cells are often very abundant. It was at one time supposed by Ehrlich that an increase in the number of the eosinophile cells was a characteristic sign of leukemia, and that by it the diagnosis between leucocytosis and leucocythemia could be readily made in doubtful cases. This theory has not been confirmed, and Ehrlich himself has abandoned it. In individuals free from leukemia an increase in the eosinophile cells has been observed and, on the other hand, in well-marked cases of leukemia the

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eosinophile cells may be absolutely but not relatively increased; in other words, the leukemic state of the blood may be chiefly due to the increase of other elements.

The leukemic blood change is characterized not only by excess of elements normally existing in the blood, but by the appearance of a cell not seen under any other circumstances. This is the so-called myelocyte. It is as large as, or even larger than, the large lymphocytes of normal blood, and differs from the latter in that it contains a large number of neutrophilic protoplasmic granules. It is, I believe, undoubtedly derived from the bone marrow. This opinion is chiefly based upon its resemblance to cells found in that tissue, but there is further evidence in its support. In a case reported may years ago by Mosler, these myelocytes were found in the blood. In the sternum were two spots upon which pressure gave more pain than elsewhere: it is described as intense. The spots were soft and elastic, and the sensation they communicated to the finger when pressed firmly into them was that of a cavity with sharp edges. During the life of the patient Mosler withdrew from one of these cavities, by means of a trocar, some of its contents. They contained, besides a small number of red globules and fat drops, a large number of cells identical with those found in the blood.

Another ingredient of leukemic blood is the pointed octahedral crystal discovered by Charcot in 1853. It is identical with the crystal found in asthmatic sputum by Leyden, and, according to Neumann, is a normal ingredient of the bone marrow. It appears to be associated with the retrograde metamorphosis of leucocytes. I am not aware that this crystal has been heretofore found in other than leukemic blood, but I have in my possession a slide containing a preparation of blood from a well-marked case of pernicious anemia in which these crystals are abundant. In the case to which I refer the white cells were not increased.

It was my intention to say a few words concerning the pathology of the disease variously known as Hodgkin's disease, adenia, pseudoleukemia, malignant lymphonia, etc., but this paper has already attained an inordinate length. Besides, I must confess my inability to draw a strict line of demarcation between this disease and lymphatic leukemia. I have elsewhere given my reasons for this opinion.[1]

Concerning the rare disease called splenic anemia, very little is known. By this term I understand an affection with all the clinical features of pernicious anemia, and with great enlargement of the spleen. I saw such a case several years ago at the Pennsylvania Hospital, the

[1] Transactions Association American Physicians, Vol. IV; also Medical News, October 5 and 12, 1889.

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patient being under the care of the late Dr. James H. Hutchinson. The characters of the blood were identical with those of pernicious anemia, and the spleen was greatly enlarged. At the autopsy, at which I was not present, the spleen was found dark and diffluent, like the currant-jelly spleen of typhoid fever. This affection has been particularly studied by Banti,[1] of Italy, and Strümpell,[2] of Germany. The accounts of the condition of the spleen are somewhat conflicting. Those who retain the term pseudo-leukemia would readily solve all the difficulties concerning the semeiological status of this disease by calling it the splenic form of pseudo-leukemia.

In conclusion, I would say that I am fully aware of the deficiencies of this paper. The subject is too vast for one evening's discussion. I wish also to express my gratification at being selected as the spokesman of the numerous members of this Society who are specially interested in the diseases of the blood, and who have advanced its study by careful clinical and pathological work.

THE METHODS OF EXAMINING THE BLOOD.[3]

ALFRED STENGEL, M.D.,

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I WAS asked to read a paper on the methods of examining the blood, but as this would of necessity be a very difficult matter if I did not refer at all to the structural conditions, it has been arranged by Dr. Henry and myself that I should extend my observations to the consideration of the histology of the blood as well.

The subject may be divided into—first, the study of the physical and chemical properties of the blood and the estimation of the number of corpuscles; and, second, the minute examination with the aid of the microscope.

It is needless for me to detail at length the methods of counting blood corpuscles, or of estimating the hemoglobin, both of which procedures are well known to you, but there are certain points to which I wish to call attention.

The red corpuscles are now generally counted by means of the instrument of Thoma-Zeiss, and, I think, with good reason. This apparatus has distinct advantages over those of Hayem, Gowers or Mal-

[1] Annali Universali. Parte rivista, 1883.
[2] Archiv der Heilkunde, Vol. XVIII, 1877.
[3] Read before the Philadelphia Pathological Society, December 22, 1892.

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lassez in one or other of the following points—the simplicity, the compactness, and the advantageous division of the squares on the slide. The division into small squares, sixteen to the large square, is an immense advantage over the oblong divisions of other instruments, in which the size of the spaces gives rise to confusion and great eye strain. In regard to the diluting fluid, I wish merely to say that of the many which I have employed from time to time none has given such satisfactory results as the 2½ per cent. solution of potassium bichromate, which Daland has so highly lauded. I have used it continuously for over a year. and find that it fixes the corpuscles at once and permanently, without change of shape or appearance, and without any danger of small conglomerations or coagula, and that the solution keeps indefinitely without change. One other point I think worth speaking of. I have frequently found the difficulty, when I have tried to draw the blood only to the 0.5 mark, that it would overshoot this mark by capillarity; whereas this difficulty is rarely encountered at the 1 mark owing to the sudden expansion of the tube immediately above. If the blood does rise above the mark, and is then expelled down to it, so many corpuscles cling to the side of the tube as to vitiate the count. The difficulty I speak of is especially apt to occur when the pipette is not thoroughly clean and dry, but may happen in any case.

Blix first introduced the principle of centrifugal force in the estimation of the number of corpuscles in his hematokrit, and Daland, among others, advocates the use of this instrument. The blood, diluted with an equal quantity of Müller's fluid or solution of bichromate of potash, is drawn into a capillary tube 35 mm. long and 1 mm. in diameter, which is then placed horizontally on an arm of the instrument, which may be made to revolve with great rapidity. The heavy red corpuscles find their way to the distal end in a few minutes, and by reading off the number of graduated spaces filled, the absolute number of corpuscles per cubic millimetre is readily calculated by means of a factor experimentally determined to be about 100.000. Thus, if the red corpuscles fill five spaces, there are 500,000 corpuscles, etc. The advantages of this instrument are the rapidity with which the count is made, the relief of the eyes from the strain of microscopic work, and the accuracy of the results, which I believe are more reliable than those obtained even by the Thoma-Zeiss instrument. The disadvantage is the impossibility of estimating the number of leucocytes, but certain alterations may perhaps obviate this difficulty.

A special form of the Thoma-Zeiss instrument has been made for counting white corpuscles. It differs from the ordinary one only in that the blood is diluted with but nine parts of fluid, so that a much greater number of leucocytes is present in a given quantity of the mix-

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ture. The best diluting fluid to use is a 3 per cent. acetic acid solution, which disintegrates and removes from view the red corpuscles. In practical work I see no use for this instrument, because, with leucocytosis of appreciable degree, the ordinary instrument suffices, and when leucocytosis is not present the number of white corpuscles may be disregarded.

The counting of blood placques has sometimes been encouraged, but thus far no practical lessons have been learned. Normally there are from 200,000 to 500,000 per cmm. Affanasiew and Fusari have noticed increased number of placques during the period of regeneration of the blood in apyretic anemias, and I am able to confirm this statement from my own observation. The difficulty in counting these bodies is their extreme liability to stick together and to disintegrate. A modified form of Flemming's solution has been recommended by Pruss, and a saline solution to which 0.6 per cent. of peptone has been added, by Affanasiew, as diluting fluids.

Two forms of instruments have been devised for estimating the hemoglobin. In the first form the thickness of the layer of undiluted blood through which lines or figures may be seen indicates the quantity of hemoglobin; and in the second form, blood diluted with distilled water is compared with standard colors. The former principle is employed in Henocque's instrument, but this has such grave disadvantages that I think we may say it is practically useless. The two instruments which depend upon the latter principle, and which divide honors, are that of Gower and that of Fleischl. Dr. Henry formerly used Gower's apparatus and preferred it, but has more recently employed the Fleischl. Personally, I like the latter, and this seems to be more and more favorably received, but it has certain disadvantages. In the first place it is necessary to use artificial light; and in the second place, in the scale, which runs from 0 to 100 and more per cent., the 100 per cent. is supposed to be normal, whereas, as a matter of personal experience, I may say there are very few healthy men who exceed 85 per cent. This error has been particularly studied by Dehio, who found the reading constantly in excess, but especially so when the quantity was small. Only once in a large number of cases have I seen a percentage as high as 100. This was in the person of a plethoric individual whose corpuscles numbered 6,000,000 per cmm., and whose hemoglobin was one time 105 per cent. and again 95 per cent. A practical point of great importance and too frequently disregarded, is the avoidance of congestion of the finger when the blood is drawn. This might seem on general principles to make little difference, but the influence of peripheral congestion was well seen in one of my cases —a case of profound cardiac anemia, in which, during an attack of

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general cyanosis from cardiac hyposystole, the quantity of hemoglobin rose fully 15 per cent. This point was also well shown by Winternitz, who found the blood of the toe to contain 15 per cent. more hemoglobin than that of the finger held above the head.

There remain to be considered certain examinations of less practical value, but which may be of interest in certain cases. The quality of the coloring matter of the blood is easily and definitely determined by spectroscopic examination, and in hemoglobinemia the same test may be applied to the plasma obtained after sedimentation of the corpuscles, the blood being kept at a low temperature. Practically, there is little necessity of this examination for hemoglobinemia, as this condition in even mild degrees may lead to hemoglobinuria or other visible signs, and in severe cases the corpuscles are seen under the microscope floating in a pinkish plasma.

The specific gravity of the blood in health is about 1055, but varies greatly with varying conditions of diet, etc., and in disease bears no constant relation to any form, excepting that, as a rule, the density is diminished in severe anemias. The best mode of estimation, it seems to me, is the modification of Roy's method practiced by Lloyd Jones and Monckton. A capillary tube is bent at a right angle near one end; the blood is drawn into this and then a drop expelled in mixtures of glycerine and water of different specific gravities. By noting in which mixture the drop of blood neither rises nor sinks, but moves horizontally from the end of the tube, and by taking the specific gravity of the mixture, the density of the blood is easily determined. More accurate methods have been suggested, but they are less readily performed.

The alkalinity of the blood has seemed to some a matter of importance. It is best determined quantitatively by titrating with standard solutions of acetic (Lassar) or phosphoric acids (Zuntz), and testing the blood from time to time by placing a drop on a plaster-of-Paris plate impregnated with neutral litmus, and quickly washing off the drop with distilled water, when the blue or red color proclaims alkalinity or acidity, as the test proceeds.

These are the main tests of the general and chemical properties of the blood, but with the exception of the numeration of the red corpuscles, and the estimation of the hemoglobin, they are of far less value than the microscopic investigations I am about to describe. The latter may be considered under two heads: the simple examination of a drop of fresh blood under a cover-glass, and the examination of fixed preparations.

Examination of Fresh Preparations.—A small drop of blood issuing from a prick of the finger is touched on its summit with a cover-

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glass, which is quickly placed upon a slide. The weight of the cover-glass or, perhaps, the slightest pressure, suffices to spread it evenly and in a thin layer.

The various forms of red corpuscles—microcytes, macrocytes and poikilocytes—are readily seen. Each of these forms has deservedly attracted careful attention, but much remains to be learned of their production and significance. The diagnostic importance ascribed to the poikilocyte by Quincke can no longer be entertained, and there seems no little probability that Maragliano's view, that they are evidence of rapid degenerative processes, is a correct one. Occasionally in pernicious anemia we may see red corpuscles which present distinct ameboid movements, to which Hayem particularly has called attention, and further, he has described certain forms which assume a rod shape or irregular contour, and by their shape and active motion well deserve the name "pseudo-parasites" which Hayem has proposed. I have seen these structures several times, and can attest to their deceptive appearance. In the blood of the fetus, as well as children up to the third month (Luzet), and in that of various grave anemias, red corpuscles containing nuclei are often detected, though their certain recognition demands the use of stains.

Definite degenerative appearances have been described by Foa, Ehrlich and Maragliano. Foa demonstrated certain granular appearances by means of staining with methyl blue; Ehrlich described a reticulated appearance of the stroma, and more recently a separation of hemoglobin from the other portions, and Maragliano has investigated the degeneration and disintegration of corpuscles under the influence of globulicidal agents. My own observations have disclosed the presence in advanced anemias, either chlorotic or of other kinds, of corpuscles containing sometimes indefinite granular matters, at other times definite round globules or granules of high refraction and distinct pinkish color, and which suggested the idea of separated masses of hemoglobin. My first impression, however, on seeing these appearances, was to consider them artifact, but repeated and careful examinations have convinced me that they are really alterations of the structure of the corpuscle. I cannot say that the corpuscles have seemed generally paler, nor have I been able to determine the nature of these bodies by staining the fixed preparations. They have been most abundant in the blood of cases of pronounced chlorosis, and though visible in ordinary fresh preparations, have seemed especially marked in blood diluted with solution of bichromate of potash.

The white corpuscles are seen in the fresh blood as granular, ameboid bodies, whose nucleus may or may not be distinguishable. They are easily separated into the large and small forms, but their more exact

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study requires fixed and stained preparations. Cafafy long ago pointed out that the ameboid motions are less active in leukemia, but this observation conveys only half the truth and an erroneous impression. There is no diminished activity of the leucocytes in this disease, but there is great increase in the number of lymphocytes or mononuclear forms, which normally are sluggish in this respect. In cases of great destruction of red corpuscles, as in malaria, the leucocytes may contain pigment matters which they have appreciated by reason of their phagocytic property, and in the same way various substances may be included. I have a very beautiful preparation of frog's blood in which one of the crescentic forms of the parasite *drepanidium ranarum* is seen enclosed in an eosinophilous leucocyte, and a similar condition has frequently been noted by various observers with malarial organisms in human blood.

Associated with the increased number of leucocytes, and doubtless dependent on this, there may be seen in leukemic blood the peculiar octohedral crystals of Charcot and Leyden. A few observers have seen them in the fresh leukemic blood, but they increase in number when the preparation is kept some time and in the blood after death, both of which facts indicate their nature as degeneration products.

In the same connection I may speak of the fibrin filaments to which Hayem and the French writers generally have directed attention. These may be seen as delicate threads interlacing and entangling the corpuscles in their meshes. Lilienfeld describes them as passing from masses of blood placques to the nuclei of adjacent leucocytes; certainly blood placques seem to play no little part in their production. They are readily seen in a drop of blood kept for some time under the cover glass, and are numerous in certain acute diseases in which clotting is active, such as pneumonia and rheumatism. No special value can be ascribed to their occurrence.

The blood placques may be seen in fresh preparations in small clumps closely associated by reason of their viscid condition. They may be still better studied by receiving the blood from a prick of the finger at once into a solution of osmic acid (one per cent.), or by placing a drop of blood on a slide and quickly washing it off with normal salt solution. In the latter case the placques stick to the glass and are retained.

Fixed Preparations.—The study of fixed preparations of the blood is one of great interest, and has been placed among the well-recognized procedures mainly by the labors of Ehrlich and his pupils, though known before. The accuracy and the importance of the results, and the pictorial beauty of the fixed and stained preparations, make Ehrlich's methods worthy of careful consideration.

If a droplet of blood be brought upon a cover glass in the

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manner described for fresh preparations, then spread out into a thin layer by pressing the cover-glass upon a second, and the two glasses then slipped apart and allowed to become dry in air, a film of blood corpuscles is obtained in which scarcely any perceptible alteration of the shape or character of the corpuscles has occurred. It is advisable, according to Ehrlich, to hold the cover-glasses with forceps during their preparation, as the moisture about the finger seems to exercise some effect on the characters of the corpuscles. The thinness of the layer, and the consequent separation of the individual corpuscles and the rapid evaporation of fluid, prevent any degenerative changes which might mar the examination; the cover-glasses so prepared keep indefinitely with little deterioration. I have fixed and stained such cover-glass preparations after they had lain three years, and found the corpuscles of ordinary appearance and normal in their color reactions. For certain purposes the blood requires no further preparation, but may be examined or stained at once. Thus Gabritschewski demonstrates the presence of glycogen in certain leucocytes in such preparations by treating with a solution of iodide of potash 3, iodine 1, and water 100, to which has been added excess of gum arabic. If now one of these air-dried, but not fixed, preparations be stained with ordinary staining fluids (eosin, methyl blue, etc., in water, weak alcohol or glycerine) it will be found that the white corpuscles stain more or less well, while the red become paler and unstained, so that some farther procedure is necessary to fix the hemoglobin in the red corpuscles. This may be accomplished to a certain extent by using a solution of eosin in carbol-glycerine (5 per cent.), the carbolic acid acting as a fixing agent, but it is effected much better by first fixing the preparation thoroughly and then staining it.

Solutions of osmic acid, bichloride of mercury, picric or chromic acid and Flemming's solution have all been used as fixing agents, and one or the other may still be needed for definite purposes, but the value of heat has been so clearly demonstrated by Ehrlich that the fluids named are seldom used. A mixture of equal parts of absolute alcohol and ether, however, is admirable for fixing the blood, and in ordinary clinical work possesses the great advantage of rapidity of action and ease of application, a dried cover-glass being simply placed in the mixture for a few minutes to half an hour.

Heat may be used in the way Koch advises for sputum, but the results are far better when the cover-glass is placed in an oven or on a heated brass plate at a temperature of 100° to 120° C., for an hour to twelve hours. The use of a brass plate is simpler than that of the oven. A plate about a foot and a half long, a few inches wide and a quarter inch thick is placed horizontally on a tripod and heated with a Bunsen

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flame at one end. After some time drops of water are dropped upon it, and the distance at which these do not assume the spheroidal state, but simply steam and disappear, is noted. This line roughly indicates the point of requisite temperature, and the cover-glasses are placed along this line or a little farther distant from the flame. Preparations so fixed receive the stains in every portion and in definite manner.

The red corpuscles are evenly and distinctly colored, presenting a homogeneous protoplasm, as in the fresh condition. Sometimes, however, when treated in a special manner, as described by Foa,[1] a granular appearance is noted. Again, Ehrlich has found a fine reticular appearance in the stroma after staining with his eosin-hematoxylin mixture.[2]

Still another peculiarity of the red corpuscles, developed by staining, has been described—first by Celli and Guerneri, later by Ehrlich and by Gabritschewski. As we have seen before, the red corpuscle does not receive stains when in the unfixed condition; that is, it is achromatophile; under the influence of heat or reagents it suffers certain changes which render it chromatophile, but in such manner that the tint assumed is a simple one and like that of the stain employed. In certain cases, however, some of the red corpuscles do not behave in this normal manner, but instead are stained in tints varying from those of the substances used. Thus instead of becoming blue with methyl blue, a greenish or purplish color is presented. This condition was found by Ehrlich to affect mainly the large macrocytes of anemic blood, and was ascribed by him to degenerative changes. Gabritschewski, however, found the younger corpuscles of frog's blood to present this peculiarity, and concludes that it results from regenerative or formative processes rather than the reverse. My own attempts at repeating the work of either observer have been signal failures, and I am inclined to think too much stress has been laid upon peculiarities which have not yet been shown to be definite.

The nucleated corpuscles spoken of before are easily and beautifully stained with Ehrlich's eosin-hematoxylin, and may be seen to be of varying sizes, the normoblasts, the microblasts and megaloblasts—names indicating that they are equal to, smaller or larger than red corpuscles. Karyokinetic figures may sometimes be demonstrated by the method given below for white corpuscles.

The staining of the blood placques is so similar to that of the erythrocytes, or red corpuscles, that nothing further need be said concerning them, and we may pass on at once to consider the properties of the white corpuscles in detail.

[1] Spread the blood rapidly on a cover-glass; dry in air; draw through Bunsen flame three times; stain with concentrated alcoholic solution of methyl blue; wash; dry; clear with clove oil, and mount in xylol-balsam.

[2] Water, glycerine, alcohol, āā 100 c.c.; hematoxylin, 1–2 gm.; alum to sat.; eosin, 1 gm.

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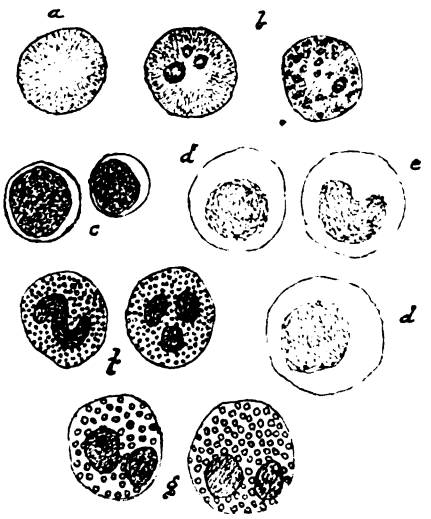
Leucocytes have long been classified in four varieties: (1) Lymphocytes, generally smaller than the red corpuscles, with a nucleus almost entirely filling the cell and staining intensely; (2) large mononuclear elements, often several times the red corpuscles in size, with a somewhat large and oval nucleus, which does not stain so intensely as the first; (3) transitional forms, identical with the last, and probably an intermediate stage between those and (4) the polynuclear or polymorphous, which are smaller but still of greater size than the red corpuscles, and in which the deeply staining nucleus has a highly irregular shape, not rarely S-shaped, and frequently divided into several smaller nuclei or fragments. The lymphocytes no doubt originate in the lymph-



a, Red corpuscle, normal; *b*, red corpuscles, showing highly refractive bodies; *c*, lymphocytes; *d* large mononuclear leucocytes; *e*, transitional leucocyte; *f*, polynuclear leucocyte filled with neutrophile granules; *g*, eosinophile leucocytes. The large mononuclear and transitional forms are usually larger proportionately than those here represented.

atic glands, and constitute about 20 to 30 per cent. of all the leucocytes. The origin of the second and third was thought by Virchow to be the lymph glands also, but of the constancy of this there is some doubt; they constitute together 6 to 8 per cent. of all forms. The polymorphous possibly take origin in the spleen and constitute 70 to 80 per cent. of all forms.

Another classification has been established by Ehrlich, based upon the color reactions of the granules found in the leucocytes; but as an understanding of their differences requires a knowledge of the properties of certain dyes, a word or two is necessary upon this point. Coloring matters, especially the aniline dyes, may be divided into the acid and the basic, the coloring property residing in the former, in the acid

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of the compound, as the picric acid of picrate of ammonium; in the latter in the base. It is needless to enter upon details, but it has been found that among the former must be reckoned eosin, aurantia, picrate of ammonium and orange; among the latter, methyl blue, methyl green, dahlia and others. Combinations of certain of the acids with basic stains produce neutral mixtures, which give rise to combination colors. Now, according to the behavior toward these different colors, or combinations of them, Ehrlich has described for human blood five forms of granules, two of which may, for the present, be disregarded, leaving three principal ones—the acid, the basic and the neutrophilic. The acid and neutrophilic granules are found in normal blood, the basic occurs only in the blood of disease.

The *a*-granulations, those which have a special affinity for acid stains, especially eosin, and are therefore called *eosinophile*, are found in leucocytes of various sizes and characters, though usually seen in large cells having one or two large nuclei. The granules themselves are seen in fresh blood as quite coarse or fine rounded bodies, suggestive at once of droplets of fat by their yellow color and their high refractive power. Their color has suggested to Hayem and others that they contain hemoglobin. That they are not fat is abundantly proved by the fact that the preparations may be kept long periods of time in absolute alcohol or ether without destruction of the granules, that they do not stain black with osmic acid, and that fat does not stain as these granules do. That they are not hemoglobin-containing is also seen in their behavior to stains. Ehrlich suggests a peculiar albuminous nature, but with no certain justification.

These granules have the greatest affinity for eosin, though other acid stains are well received. Good results may be obtained by staining the air-dried and heated cover-glass in a saturated solution of eosin in glycerine for twelve hours or more; but for clinical work I find the following method most satisfactory: the air-dried cover-glass is placed in a mixture of absolute alcohol and ether five minutes, then stained with a 1 per cent. solution of eosin in 60 per cent. alcohol, to which has been added an equal quantity of water at the time of staining. The cover glass is left in this solution a minute or two, until it assumes a decided pink color; washed in water; counter-stained in Delafield's hematoxylin about one minute and again washed, then dried and mounted. The eosinophile granules are dark red, the red corpuscles lighter, the nuclei of the white corpuscles deeply colored by the hematoxylin. The prettiest effects are obtained from glycerine solu-

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tions, and for differential staining a mixture[1] of indulin, aurantia and eosin may be used. With this stain the nuclei are purple or black, the red corpuscles orange, the eosinophile granules red.

The claim of Ehrlich, that the presence of these eosinophilous leucocytes in large numbers is diagnostic of leukemia, has not been sustained, and he has himself abandoned the view. The specimen I show you is from a case of asthma, and, like another from the same disease which I have here, shows distinct increase of eosinophiles, without leucocytosis of marked degree. The counting of the number of eosinophiles may be accomplished roughly by moving the slide from field to field and counting all the leucocytes in each until a large number have been put down. This is a tedious and crude method; and a better has lately been proposed by Zuppert, which, however, I have not yet used. He employs with the Thoma-Zeiss instrument a diluting fluid[2] containing eosin, and counts these, as other corpuscles, on the slide. The solution stains the eosinophile cells dark red, the neutrophilic and red corpuscles light pink, after a few minutes.

The neutrophilic or ε-granulations are the most abundant granules of the normal blood, and, when properly stained, are seen as fine bodies closely packed and filling the whole of the polymorphous leucocyte. The latter always contains such granules, and in healthy blood none of the other white corpuscles presents such. In leukemia, however, the same granules are seen in the large mononuclear and transitional forms, and the same kind of corpuscle is normally found in the bone marrow, whence Ehrlich readily arrived at the conclusion that the cells are myelogenic and gave them the name of "myelocytes." They occur only, as was said, in leukemia, but are not invariably present in this disease. Various mixtures have been proposed as neutrophilic stains. Ehrlich first used a mixture[3] of methyl blue or green with acid fuchsine; and with this the neutrophile granules are of purplish color, the eosinophile

[1] Sat. sol. aurantia in glycerine 1
Add glycerine 1–2
Eosin and indulin in excess.
Mix by prolonged agitation.—(Schwarze)
Or,
Indulin,
Aurantin,
Eosin ..... āā 2
Glycerine ..... 30. (Huber).

[2] Osmic acid sol. (1 per cent.) ..... 2 parts
Glycerine and water each 25 ..... } 1 part.
Aqueous sol. of eosin (1 per cent.) 100 ..... }

[3] Sat. aq. sol. of acid fuchsine, ... 5 parts
Sat. aq. sol. methyl blue (or green) ..... 1 part
Add the second to the first slowly, stirring vigorously, then add
Distilled water ..... 5 parts.
After a few days filter.
Stain 2 to 5 min.; wash hastily in water.

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dark red, the nuclei blue or green. Later the same author proposed solutions[1] of acid fuchsine, methyl green and orange G, with which the neutrophile and eosinophile granules have the same appearance as with the other, but the red corpuscles have an orange tint.

The basophilic or γ-granulations resemble bacteria in their reaction with aniline dyes, taking such basic stains as methyl blue and dahlia by preference. They are sometimes abundant in leukemic blood, and are present in various connective tissues, where their apparent relation to nutritive processes caused Ehrlich to give them the name "mastzellen." They are the same cells as those which Waldeyer called "plasma-cells," or at least some of the latter are mastzellen. Their significance has not yet been determined. Ehrlich suggested dahlia[2] as a stain, but methyl blue[3] is also efficient, though my experience has been mainly with the former.

I need not multiply the methods of study by enumerating the many which have been proposed, but will rest content with having given the best, and those which, for the most part, I have had occasion to employ. The subject of the "specific granulations" of Ehrlich is sufficient to have engaged the amount of time I have devoted to the whole question of blood examination, but it was not the intention of your committee, or my desire, that I should enter upon the discussion of the nature and origin of these structures, or upon the other interesting questions arising from these studies. Whatever of a practical nature we may admit or deny to these studies, all will concede the immense debt of gratitude our science owes to Ehrlich for having by this means at least aroused a renewal of interest in the important field of hematology.

One more point and I have done. Müller has recently studied the

[1] Sat. aq. sol. of orange G..... 125 cc.
Sat. sol. (in 20 per cent. alcohol) of acid fuchsine..... 125 cc.
Mix, and add gradually, shaking constantly,
Sat. aq. sol. of methyl green..... 125 cc.
And finally
Absolute alcohol..... 75 cc.
Let the solution stand several weeks, and take out the required quantities with a pipette. *Do not filter.* Biondi has modified the formula slightly, and his mixture of dyes, ready for solution, is kept by large dealers. One part of the mixture with six of water and one of absolute alcohol makes the proper solution.

[2] Dist. water..... 10 cc.
Sat. sol. of dahlia in absolute alcohol..... 50 cc.
Glacial acetic acid..... 10–12.5 cc. (Ehrlich.)
Müller uses this solution, staining specimens (which were first heated and then placed in absolute alcohol several days) for several hours, after which they are washed in water and a considerable time in alcohol.

[3] Sat. aq. sol. methyl blue..... 40 cc.
Sol. of eosin (½ per cent.) in 70 per cent. alcohol..... 20 cc.
Distilled water..... 40 cc.
The air-dried specimens are put in absolute alcohol at least five minutes, then in the stain, where they are kept at a temperature of 37° C. for 3 to 6 hours. Wash in water. The eosinophile and basophile granules are prominently stained. (Canon.)

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question of karyomitosis in white corpuscles, a subject to which attention was first directed by Flemming. Müller fixes the blood by heat and saturated solution of picric acid, placing the heated cover-glass in the latter for twenty-four hours. The preparation is then washed in running water for several hours and stained in much-diluted Delafield's hematoxylin for twenty-four hours; or the cover-glass may be taken from the picric acid and at once put in borax or ammonium carmine. Müller found in leukemic blood certain large cells resembling Cornil's marrow cells, which presented distinct karyokinetic figures, and which he regards as characteristic of leukemia. The observation requires confirmation.

SOME OF THE TERMINATIONS OF EXTRA-UTERINE PREGNANCY.[1]

By Barton Cooke Hirst, M.D.,

Professor of Obstetrics, University of Pennsylvania.

There are few pathological conditions in obstetrics exhibiting such irregularities in symptoms and in terminations as extra-uterine pregnancy. It is not my purpose, however, to recite in detail the characteristic symptoms and terminations of extra-uterine pregnancy, with all the possible departures from the usual course, but to direct your attention to a few of the salient points as they strike a practitioner, using for illustration, principally, a group of five cases that came under my notice in three months' practice last summer. Let us first take an interesting case that was diagnosticated before rupture, operated upon just as the gestation sac burst, and that ended in complete recovery.

Mrs. W.,[2] aged 23, married in April 1892; menstruation, which had always been regular and of the four weeks' type, appeared twice naturally after marriage. On June 30, two weeks after the last period, there was a sudden gush of bright blood. Four days later a similar flow, both without pain. In a few days the discharge again appeared, in moderate amount, and continued almost without interruption up to the time of the operation, on July 29. Early in July pain appeared, of a cramp-like character, and sometimes very severe, but the pulse was never hurried or weak. The uterus, on repeated and careful examination,

[1] Read before the Stillé Medical Society of the University of Pennsylvania, December 1, 1892.

[2] The account of this woman's case is taken from the notes of Dr. M. Howard Fussell, whose patient she was. Dr. Fussell had made the diagnosis of extra-uterine pregnancy before I saw her.

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was found freely movable, perfectly painless on motion, but somewhat enlarged. There had never been a discharge of membrane or shreds. No tumor could be detected in the neighborhood of the womb. On July 26, there was an unusually severe attack of pain, and then for the first time a tumor of considerable size, and exquisitely sensitive, could be felt fixed in Douglas' pouch. The uterus had also become immovable. When the abdomen was opened there was a little free fresh blood in it which continued to flow till the ligature was applied to the right broad ligament. The tubal gestation sac, almost the size of a hen's egg, and its contents are shown in Plate 1. The latter was exactly like the fleshy moles so often discharged from the pregnant uterus.

There are several puzzling and interesting questions presented in this case. When did impregnation occur? Why should a healthy young woman, conceiving shortly after marriage, have an extra-uterine pregnancy? and what justified the diagnosis? The first cannot be answered certainly. Perhaps directly after marriage, in which case the metrorrhagia, on June 30, corresponded with the death of the embryo; perhaps shortly before this date, though I think this unlikely. Observe in either case that there was no cessation of menstruation, one of the symptoms much depended upon in making the diagnosis of extra-uterine pregnancy. The second question also cannot be definitely answered. It might have been any of the known causes, but it reminds me of another case in which I believe the tubal gestation to have been due to a congenital stenosis of the whole genital tract, including the tubes.

In this woman I forcibly dilated the cervix for dysmenorrhea and sterility. Two months afterward she became pregnant, but the ovum lodged in the tube. The early diagnosis, in answer to the third question, was the result of Dr. Fussell's previous experience with extra-uterine pregnancy, and was, I think, quite an achievement in view of the rather indefinite symptoms—irregular menstruation and intense pain. The absence of a perceptible tumor, till the tube descended into Douglas' pouch and became fixed there, was particularly calculated to mislead. Of course the tumor was there, but it could not be reached nor appreciated. I have had just such an experience in another case and I attributed it to the high position of the tube, its lack of firm consistency, but most of all to the impossibility of a satisfactory bimanual examination, owing to the rigidity and fixation of the abdominal walls, the result of peritoneal irritation. Etherization, perhaps, in both cases, would have allowed the detection of the enlarged tube.

The next two cases to which I would direct your attention are interesting, by way of commentary, on a point at present in dispute, namely, the proportion of extra-uterine gestations which are spontaneously cured. In one case there was cessation of menstruation for

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PLATE 1.

FLESHY MOLE.

PLATE 1 *a*.

GESTATION SAC.

PLATE 2.

PLATE 3.

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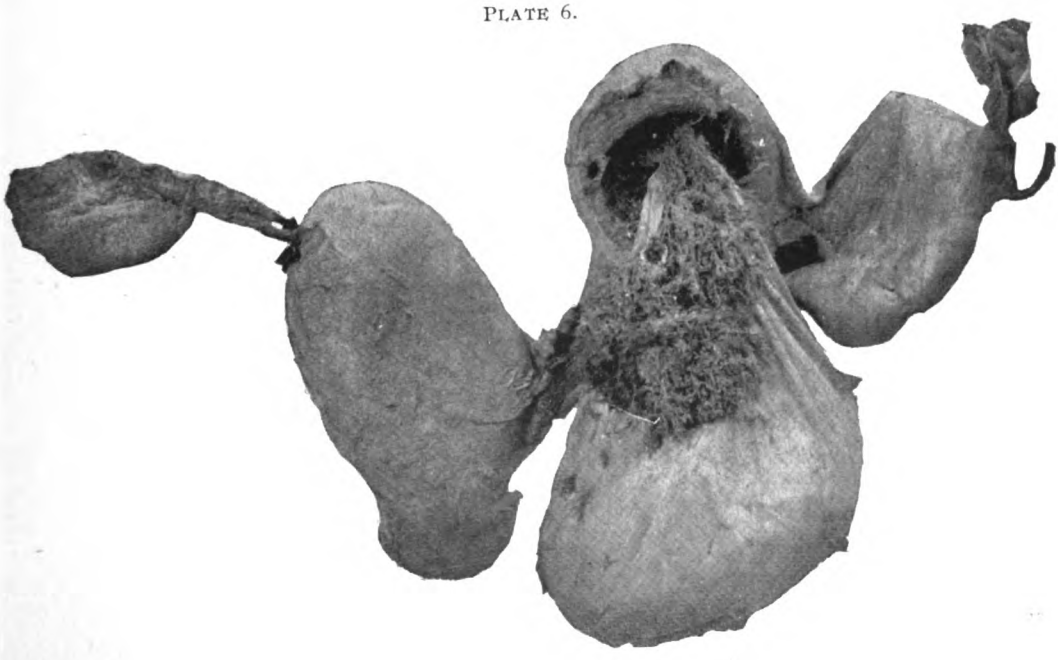
PLATE 4.

PLATE 5.

PLATE 6.



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two periods; then a return in the shape of a continuous flow that had lasted four months, with only two days intermission. On examination a large adherent, sensitive mass was discovered in Douglas' pouch. There had been incessant pain in the left groin, incapacitating the woman for all work. She at once agreed to an operation, if there was any prospect of relief. In the other case there had been continuous bleeding for seven weeks, with the discharge of a "fleshy membrane" at the fifth week. There was no menstrual history, for the patient had been nursing a child for fourteen months, and had only menstruated twice in that period. The physical signs were the same as in the preceding case. The pain was intense and exhausting. The woman's face was pinched and anxious; she walked with short steps and the body bent forward. A probable diagnosis of extra-uterine pregnancy was made in both cases. The specimens removed from these women are shown in Plates 2 and 3. The gestation sacs were firmly adherent to neighboring structures, and the ova were represented by well-organized masses of blood, in which could be demonstrated chorion villi. Now, in both instances, the acute stage of the process, so to speak, had passed. The ova had ceased to grow for some time, and in each the whole sac was undergoing some degree of atrophy. Therefore, the danger of rupture and fatal hemorrhage was over, and, consequently, in a tabulated record of cases, these women would go down as spontaneously cured. But were they really so? They would have denied it. In course of time, no doubt, their condition certainly would have become more bearable, although some degree of permanent invalidism was probable. But, in the meantime, they could not afford their enforced idleness, for they were working women, with a household dependent on them. In the study of extra-uterine pregnancy, one should take into account the remote results in cases that are not immediately fatal from hemorrhage before pronouncing judgment on the proportion of spontaneous cures. Schanta's tables, for example, would read differently, perhaps, if this could have been done. Instead of thirty-seven per cent. of cures, when no interference was attempted, we would find a very much smaller proportion that really suffered no serious effects, such as prolonged impairment of health or permanent invalidism.

The next two cases on my list are unfortunately of a common kind. They both ended fatally from rupture and hemorrhage. In each there were tolerably clear signs of extra-uterine pregnancy. One was operated upon by myself, the other died before an operation could be attempted. I am indebted to Dr. Fussell for both specimens, from which the photographs have been taken (Plates 4 and 5). In the first case the abdomen was enormously distended with blood when I opened it, and

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the bleeding continued active even after the broad ligament had been well secured. It was finally checked by tamponing the pelvic cavity with gauze, but the woman was too far gone, and died a few hours later.

In conclusion, I wish to exhibit the photograph (Plate 6) of a very interesting specimen that I discovered last year tucked away in a corner among the Hodge collection, in a jar from which the alcohol had almost entirely evaporated. There was no label on it, and I know nothing of its history, but it is, you see, a perfect specimen of pregnancy in the rudimentary horn of a uterus unicornis. It looks to me as though the extrusion of the fœtus and membranes from their original sac had been gradual. If so, we have a beautiful demonstration of one kind of secondary abdominal pregnancy.

MEMORANDA.

SUPPURATIVE TONSILLITIS IN INFANCY, WITH THE REPORT OF A CASE.

SUPPURATION of the tonsils occurs very rarely in early life; such is the dictum of most experienced physicians. Clinicians of wide observation and diagnostic acumen are singularly consentaneous in affirming the rarity of its occurrence. Starr writes: "Quinsy is a rare disease in childhood, and is scarcely ever met with before the twelfth year." Osler asserts that suppurative tonsillitis is most common in adolescence. Beverly Robinson maintains that only in later childhood, or toward puberty, do the tonsils affected with acute inflammation go on to the stage of suppuration. "In fact," he writes, "I cannot recall a single instance in which I have seen suppurative tonsillitis in a small child." Loomis says: "Quinsy is rare in those under twelve years of age;" and Sajous places its period of common occurrence between the ages of twelve and thirty years. Meigs and Pepper have seen acute tonsillitis occasionally in children under five years of age, but its termination in suppuration very infrequently. In the *Annual of the Universal Medical Sciences* for 1892 it is noted that Silverskiöld observed acute tonsillitis in 17.9 per cent. of the acute internal diseases in children under two years of age; follicular tonsillitis had been observed rarely, and quinsy never.

Clark, in the *New York Medical Journal*, April 26, 1890, described

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a case of quinsy in a male infant of fourteen months. But to my knowledge only one writer[1] has reported a case of suppurative tonsillitis in a child younger than the one here recorded, the difference between their ages being but one month. For the privilege of attending and reporting the following case my sincere thanks are proffered to Dr. J. M. Anders, of the Medico-Chirurgical College.

Baby R., eight months of age, was born apparently healthy and the issue of a healthy parentage, although the mother appears to be of a strumous diathesis, and there is a suspicion of tuberculosis in her family history. After the first few days the babe was fed with the bottle, but did not thrive. When five weeks old marked evidences of malnutrition began to show themselves. The hot summer months coming on, an intractable entero-colitis set in, and the child became progressively emaciated so that its life was almost despaired of. When three months old dentition began with the exception of the two lower incisors; at this time the child was attacked with measles. When six months old it suffered with whooping-cough. Meanwhile the entero-colitis persisted, as did also a nasal catarrh which had existed since a few days after birth. About this time Dr. J. M. Anders was called to treat the child, and in a few weeks there was a marked improvement in its general health.

Four days prior to my first observation of the babe the gastro-intestinal symptoms became much aggravated. On the third day, according to the mother's description, the child became very peevish, restless and at times apathetic, and was worse at night. There were slight spasmodic movements of the fingers, and the pulse was slightly accelerated, small and moderately compressible. Inappetence, soon followed by absolute refusal of nourishment, were the only dominant symptoms indicating oral or faucial trouble. With the above history the oro-pharynx was examined with the following result: The right tonsil was considerably swollen, dusky-red and conoidal, the apex almost touching the reddened ulvula; the right anterior half-arch was also congested and tumid. At the point of the tonsillar swelling a pinhead-sized, yellowish-white spot was seen. The shiny, edematous appearance of the inner half of the gland suggested the presence of pus, and this was verified by the escape of a half drachm of creamy pus when the gland was incised with a guarded bistoury. Subsequently, instructions were given to wash the mouth at intervals with a soft rag moistened with a solution of borax. In a few hours the little patient was sound asleep, and on awaking took nourishment readily.

In addition to the unusual factor of infancy in this case there are several features which, both from an etiological and clinical standpoint,

[1] Reid, Archives of Laryngology, Vol. I, p. 229.

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deserve a passing notice. It may be remarked that while chronic tonsillar enlargement is relatively common in youth, and especially at puberty, it is not, as a rule, a sequel of frequently-repeated attacks of acute tonsillitis during infantile life. This statement supplies another point indicative of the relative infrequency of quinsy in early childhood.

The inherited strumous constitution of the child rendered the development of an acute tonsillar inflammation peculiarly easy after a very slight exciting cause. Of the latter, however, presumptive evidence only was obtainable. Mechanical irritation from the use of the rubber nipple, and chemical irritation from the decomposition of the milk, could not be eliminated as causal factors, and neither could the attack be proven to be excited by the extension of the muco-purulent nasal catarrh, which had existed almost from birth. It is to be pointed out in this connection that certain local atmospheric conditions seem especially favorable to the development of acute tonsillitis in children as well as in adults. The disease has thus become endemic or epidemic, as occurred in Gordon, France, for instance, in the autumn of 1818.[1]

A fact still better known is, that in seasons when diphtheria, scarlatina, rubella and influenza are most prevalent, tonsillitis in children occurs most frequently. All of the above diseases existed to a moderate degree at this time except "la grippe," which was rampant, and which it is significant to note was marked at that time by characteristic anginose complications. May not the prevailing state of the "grippy" atmosphere have exerted a predisposing influence in the causation of this case of infantile quinsy? Referring to the clinical phenomena exhibited in this case, the history fails to corroborate the statement made by Sir Morell Mackenzie, that the constitutional symptoms of quinsy are more marked than those of follicular tonsillitis. Some throat specialists have also been unable to confirm this observation. But as Dr. Robinson, of New York, suggests, Dr. Mackenzie may have had in mind the symptomatic features in adults and not in small children. Certain it is that in this patient the systemic disturbance was at no time pronounced, such as it is apt to be at the onset of follicular tonsillitis or of quinsy in adults. Indeed, the insidious onset and the mild course of so acute an affection in one so young are quite noteworthy.

It is quite probable that the tonsillar abscess would have burst in this case within twelve hours had it not been incised, and would have jeopardized the child's life, perhaps, by the pus flowing into the larynx and causing suffocation, or into the bronchi, causing grave aspiration

[1] Dict. Encycl. des Sciences Médicales, Vol. IV, p. 19.

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pneumonia. However, according to Beverly Robinson, it is very unusual for suppurative tonsillitis in children to terminate fatally. The rapid subsidence of symptoms and the prompt convalescence which followed, were typical of what follows the evacuation of an acute abscess elsewhere.

HOWARD S. ANDERS, A.M., M.D.,
Instructor in Clinical Medicine, Medico-Chirurgical College, Philadelphia.

QUININE IDIOSYNCRASIES.

THE interesting communication on "Quinine Idiosyncrasies" in the December number of the MAGAZINE, by Prof. H. C. Wood, recalls an example of this predisposition which came under my observation a few years ago.

G. S., aged 55 years, married, while traveling abroad in the summer of 1889 was prescribed quinine by a physician whom he consulted for some trivial affection. About an hour after the administration of this drug he felt a burning pain at the end of the penis. The pain increased, and soon there developed a violent balano-urethritis, the meatus urinarius being occluded by pseudo-membranous exudation. The inflammation subsided under treatment in the course of three or four days. The patient naturally did not suspect the quinine as a possible etiological factor. Several months later this drug was again administered to the patient without his knowledge with precisely the same effect. During the summer of 1892 Mr. S. was advised by a druggist to take some quinine for a cold. Again a most troublesome balano-urethritis was produced in less than one hour. The causative influence of the quinine was then suspected and the patient was asked to repeat the dose as a test. This he refused to do on account of the painful nature of the inevitable consequence. Several months ago the patient received some pills from a physician upon whom he had called. In less than an hour after the ingestion of the first pill, symptoms of balano-urethritis appeared. He hastily consulted the druggist to ascertain the composition of his prescription, and found that each pill contained one grain of quinine. An attack similar to all of the preceding ones was endured. The patient declares he will never take a pill again without previously having had an analysis made of it.

JAY F. SCHAMBERG,
Resident Surgeon, University Hospital.

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EDITORIAL.

THE SIGNIFICANCE OF GASTRIC INACIDITY.

In a contribution to the *London Medical Gazette* of 1842, Golding Bird first called attention to the absence of free hydrochloric acid from the gastric juice in cancer of the stomach. Since that time numerous observers, including Kussmaul, von den Velden, Riegel, Ewald, Cahn and Rosenheim, have confirmed Bird's observation. Much that has been written in the way of refutation and of confirmation is of little value, as many of the experiments were made with crude tests, and without reference to the food taken or the stage of the digestive process.

The most reliable tests are those of Günzburg and of Boas; the former consists in adding a few drops of a solution of two parts of phloroglucin, one part of vanillin and thirty parts of absolute alcohol to a few drops of the gastric contents contained in a porcelain dish, when a rose-red color develops on heating the mixture. In Boas' test resorcin is substituted for the phloroglucin-vanillin. To insure accurate results, the contents of the stomach should be expressed about an hour after the ingestion of some simple test-meal, such as the one suggested by Ewald, consisting of a roll with half a pint of water, or tea without sugar or milk.

If hydrochloric acid was always absent in gastric cancer, and was always present in other affections, the diagnosis of that fatal malady would be of the most simple solution; but, unfortunately, the acid is frequently present in cancer and absent in many other conditions which could readily be mistaken for it. It has been shown conclusively that gastric cancer *per se* does not cause inacidity, or even subacidity, but that the latter symptom results from atrophy or catarrh of the mucous membrane, which is commonly associated with the malignant growth. When the tumor is localized, and the surrounding mucous membrane comparatively normal, hydrochloric acid may be present almost to the close of life. Such a case recently came under the observation of the writer. On the other hand, destruction of the mucous membrane from other causes is associated with inacidity or subacidity. In chronic gastritis, with atrophy of the gastric tubules, the persistent vomiting, loss of flesh and strength and anemia may render the diagnosis from cancer extremely difficult, and the test for free acid will throw but little light on the question, since the acid is as likely to be absent in the one case as in the other. In acute gastritis free acid is usually absent, and this should be remembered, otherwise

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the existence of this condition in the course of chronic affections of the stomach may lead to errors in diagnosis.

It should also be borne in mind that in diseases of other organs the gastric juice may be modified and its free acidity lessened. It has been shown by Rosenthal, Klemperer, Immermann, Brieger and others that in tuberculosis, especially during the active stage, free hydrochloric acid is often absent from the gastric juice. In cardiac disease, with failure of compensation, in marked anemia, in the infectious fevers, and in certain cases of neurasthenia and hysteria, examination of the gastric contents may fail to detect free hydrochloric acid.

It is evident from the foregoing that inacidity is of less value in determining the existence of gastric cancer than the presence of free acid is in excluding that affection. When the diagnosis lies between gastric ulcer and cancer, the absence of the acid would be a strong factor in favor of cancer, since in ulcers the acid is almost invariably increased. The diagnosis of cancer from long-standing gastric catarrh must be established by other data, as the absence or presence of hydrochloric acid is absolutely of no diagnostic value. In all cases repeated examinations ought to be made before any weight is attached to inacidity or subacidity, for in any condition the free acid may be diminished or absent from some temporary irritation.

THE REPORT OF THE SURGEON-GENERAL OF THE ARMY.

THE report of the Surgeon-General, recently issued, displays a very careful observation of this large body of men in the various matters relating to their warfare. The health of the army is considered satisfactory, the ratio of illness being less than in 1890, and still less than the average of the previous ten years. Of the various departments the Eastern suffered most. The proportion of cases of acute illness has been very much increased by the epidemic of influenza, reports of which as it occurred at the different forts are appended, the most extended of which is that of Captain Charles E. Woodruff, stationed at Fort Missoula, Montana

The reduction in the number of cases of malarial diseases is very marked. This is attributed to the improved sanitary conditions which now prevail at the various posts. In speaking of the extraordinary record in this respect from Fort Brown, Texas, the report says, it "can be attributed only to the use of cool, distilled water from the ice machines." The advisability of supplying ice machines to such posts as have an inferior water supply is, therefore, very apparent. Various extended tables are appended to show graphically the health of the men from every aspect; is also an improved pattern of ambulance, field-case, and medicine chest is shown.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

Diagnosis and Treatment of Basic Pulmonary Cavities.

Coupland (*Lancet*, London, October 15, 1892) calls attention to the fact that while perhaps 90 per cent. of basic cavities are tubercular in origin, the remainder may be caused by various conditions which it is of prime importance to distinguish. After detailing a case with a probable cavity in the upper part of the lower lobe, he makes the following remarks: He believes the signs met with over a cavity are not distinctive, and that cavities may exist which are beyond detection by physical examination if they are deeply seated, or if they are not in communication with a bronchus. The ordinary signs are (*a*) flattening of the chest wall with impaired expansion; (*b*) bronchial breathing; (*c*) broncophony and pectoriloquy. However, he points out, what is doubtless true, that it would be hazardous to diagnose a cavity from these signs alone, and that they are not to be distinguished from those due to a consolidated or compressed lung. The degree of (*a*) depends upon site and size of the excavation and its nature. If the cavity is surrounded by a fair amount of alveolar tissue it may not be marked; "*b*" may be obscured for the same reason, or if the cavity be large and thin-walled the percussion note may be tympanitic, or the "cracked-pot" sound may be elicited; "*c*" implies free communication with a bronchus; it may be absent if the cavity is small, or it may be of a hollow character if the cavity is large. The amount of contents also modifies the sounds produced. The sounds may be temporarily suppressed until the contents are evacuated. Broncophony and whispering pectoriloquy, when heard over a limited area, afford presumptive signs of a cavity, but are not pathognomonic. It is difficult to be certain of the size of a cavity, as the size does not always correspond to the area over which the blowing is heard. The area of marked pectoriloquy is a safe guide, but the surrounding consolidated lung tissue may conduct the sounds of the voice well. If there is not a true hectic of phthisis, if there is an absence of apical signs, no constitutional decline, and if there has been repeated failure to find tubercle bacilli in the sputum, there is a strong probability that the case is not tubercular. The position of a cavity at the base of the lung is against tuberculosis, for if there is one point in the history of tuberculosis better established than another it is the early implication of the apex. As the disease progresses, the next part of the lung to be affected is the upper part of the lower lobe, or the "posterior apex," as it has been styled. Primary basic phthisis is exceedingly rare. The only other pulmonary condition, which is chronic in its course, is bronchiectasis. If the case is non-tuberculous, inhalations may correct the fetor and assist nature in causing the cavity to shrink. However, there is danger with such a cavity full of fetid pus in its giving rise to septic pneumonia or gangrene. Surgical interference should be gravely considered. If the cavities are multiple surgical interference would probably give but temporary relief, and injections into the cavity would be but palliative.

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Scarlet Fever Complicated with Influenza.

Philippoff (*Archiv für Kinderheilkunde*, Vol. XIV, Part VI, 1892). The author writing from Moscow states that during the prevalence of influenza all other diseases appear to be affected by the epidemic disease, and all diseases partake more or less of its characteristics. During the two years he had observed forty-five cases of scarlet fever. Of these sixteen cases were definitely complicated with influenza; of these three were complicated with very severe pneumonia. The mild cases are thus characterized: The disease begins gradually, with fever, dry cough, coryza, ringing in ears and conjunctivitis. The nervous system is excited. The objective signs are those of the influenza or the prodromal stage of the influenza, that is, conjunctivitis, coryza and moist râles in the lungs, with a temperature of 101° to 102°. Frequently there is hypertrophy of the spleen. Such a condition lasts two or three days, then a fall of temperature and a feeling of general well-being occurs. Suddenly the temperature rises to 103.5°. Vomiting and typical scarlet fever rash appear. The tonsils enlarge and the tongue becomes the characteristic "strawberry." The well-marked cases begin in the above manner; in less intense cases the temperature rises slowly, the rash appears irregularly. The exudation in the throat is usually slight. After the exudation appears there is usually a combination of the catarrhal symptoms of influenza united with the usual symptoms of scarlet fever. Not seldom there is middle ear disease. The temperature is usually marked with a morning remission and evening rise. In his cases there were no complication with nephritis or rheumatism. In a word, there is for the first two or three days the usual form of mild catarrhal influenza which is more or less lengthened, followed by definite signs of scarlet fever more or less prolonged. Both have a mild course, and at the end of three or four weeks the patient is well, excepting a slight exudation from the ear. He considers the prognosis in such cases as favorable, there being less danger of complications of either disease, and the course of both is made less severe. In the same epidemic there were twenty-nine cases without influenza. There were 81 per cent. of mild cases in those complicated with influenza, and 50 per cent. of mild cases in uncomplicated scarlet fever.

Movable Kidney.

Schmitt (New York *Medical Record*, October 22, 1892) believes that one woman out of every ten is affected with a greater or less degree of displacement of the kidney. Under favorable circumstances the lower end of a normal kidney can be palpated. The examination should be bimanual, with the patient lying on the sound side with the hips and knees well bent. On pressing one hand beneath the free border of the ribs and the other over the region of the kidney posteriorly while the patient takes a deep inspiration, the tip of the kidney can be felt, provided the abdominal walls are thin, the intestines are empty and contraction of the muscles does not occur. The first stages, which consist in a mere loosening of the kidney, may be easily felt by this means. All degrees of displacement may occur, from a simple loosening of the kidney to its lodgment in the pelvis. It generally descends behind the peritoneum between the layers of the meso-colon. It is safe to pronounce an oval, solid, easily movable tumor, which is tender on pressure and situated in the lateral abdominal region, a movable kidney. Different examinations give varying results. Sometimes the tumor can be detected, other times not. The symptoms are a feeling of weight and pressure in the abdomen, pains in the hypochondriac and lumbar regions, which radiate to the shoulder or

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to the pelvis and thigh. There are manifold nervous disturbances. Bodily exertions aggravate the symptoms, rest on the back relieves them. Digestive disturbances are very common. Gradually hysterical and even mental symptoms develop. In certain individuals there is no disturbance whatever. Frequently the similarity of the symptoms of movable kidney and of diseases of the sexual organs is very striking. The discomfort of a movable kidney is usually relieved by pregnancy, the kidney being pushed up. Continued coughing, straining and all conditions which tend to maintain the diaphragm in inspiration predispose to displacement of the kidney. Women whose abdominal walls have lost their elasticity are peculiarly prone to the affection. Severe laceration or relaxation of the perineum predisposes to the displacement. Pelvic exudations, tumors and retroversions of the uterus may cause the trouble by bringing about compression or torsion of the ureter, with the retention of the urine in the kidney and sinking of the organ on account of its great weight. Treatment of lumbar pains, abdominal discomforts and their accompanying hysterical disorders, which is directed to examination of the kidney as well as of the pelvic organs, will be most successful. In the majority of instances the symptoms can be relieved by the use of a well-fitting abdominal elastic belt. If this does not avail nephrorrhaphy must be resorted to.

Myxedema Treated by Feeding Thyroid Glands.

Mackenzie and Fox (*British Medical Journal*, October 20, 1892) publish separate articles upon the above subject. Their experiments are based upon the plan suggested by Murray, and published some time since (June, 1892) in the same journal. Murray used a fresh extract of thyroid glands obtained from sheep and administered it hypodermically; these authors advise the fresh gland to be administered by the mouth. Mackenzie's case had been under treatment for two years with negative results; indeed, the patient continued to fail. July, 1892, she was again admitted to the Royal Free Hospital. During the first two weeks of observation the temperature averaged 97.2. At the end of two weeks two sheep's thyroids were pounded and given her to eat. Her pulse at once increased in rapidity. On July 28 she was given two drachms of fresh extract of thyroid glands, and her pulse increased and a slight rise of temperature (99.4°) took place. The administration of glands was continued, and the rise of temperature and increase of pulse rate also continued. With this alteration the patient's appearance changed. There was a general diminution of the swelling and an amelioration of all of the symptoms accompanying the myxedema. He advises that one thyroid gland be administered every other day, or half a gland every day. It is less nauseating when given with a little brandy. Fox's case was given a glycerine extract prepared after Murray's formula. She took one gland a day. After three months of treatment there was marked improvement in the patient. She was then ordered to take the minced gland once a week lightly fried. She took it twice a week and became very weak. These latter symptoms disappeared after stopping the gland. At the end of the fifth month she considered herself well.

Influenza of 1891 and 1892 in Gratz.

Herzog (*Archiv für Kinderheilkunde*, Vol. XIV, Part 6, 1892) observed 175 cases from the end of November, 1891, to the end of January, 1892. The increase in the number of cases occurred rapidly, the greatest number being treated on December 25. After January 31 there was no general epidemic, though several

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house epidemics were observed as late as May. This epidemic was less extensive than the previous one. Children were more frequently attacked with severe bronchitis and often pneumonia. The attacks were thus characterized: A person was frequently seized while out with a severe chill, followed by high fever, much headache and pain in the eyes. The scleræ were much injected, there was nausea with frequent vomiting, the tongue was heavily coated, dullness and a feeling of severe illness, with rheumatic pains over the whole body. The cases were divided into those with catarrhal, gastric and nervous symptoms. There was always excessive congestion of the different organs. Bleeding from the nose and genitals was common. Menorrhagia and metrorrhagia were common. One case of hematuria was noticed. Middle-ear affections, caused by extravasation of blood, were frequent, as well as catarrh of the tube. Almost all patients had bronchitis, which had a tendency to become capillary, and in many there was doubtless the formation of small pneumonic areas. Catarrhal pneumonia was common, and frequently typical attacks of fibrous lobular pneumonia occurred, with chill, rusty sputum and a considerable area of dullness. Six of the 170 cases were attacked with severe inflammation of the lungs, four of which died. Laryngitis was common, and one case expectorated a croup-like membrane. Neuralgia was common, especially trigeminal neuralgia. Neuritis was also more or less frequently observed. The convalescence in many cases was prolonged. Diseases of the nose and throat were more common after the epidemic than before it. He believes that many cases of tuberculosis of the lungs had their origin in attacks of influenza, so common were catarrhal affections after this disease. He believes that one attack of the disease does not give immunity to a second attack. All persons were liable to be attacked, no condition or age protecting against it. He believes the disease is highly contagious, and that the incubation stage is from three to six days.

Treatment of Cholera.

Cantani (*Berliner Klinische Wochenschrift*, No. 37, 1892), writing from Naples, gives his experience in the treatment of cholera in the following manner: There are four indications to be met in this disease.

(1) The prevention of the growth of the comma bacillus in the intestinal canal.

(2) The neutralization of the cholera poison in the intestinal canal.

(3) The most rapid excretion of the poison absorbed by the blood.

(4) The correction of the thickening of the blood which may have already taken place in the cholera patient.

Naturally the indications change with the various stages of the diseases. The first two indications can only be met in the very early stages of the disease, while the last two can have reference only to the later stages, or in very severe attacks. Practically we meet with three stages of the disease—the premonitory diarrhea, the well-developed attack of cholera, and the stage of reaction. In the first stage the first two indications must be met promptly and efficiently. The treatment found by the author to be far superior to all others in preventing the growth of the comma bacillus in the intestine, and in counteracting the poison developed there, is the use of *hot enemata of tannic acid.* Five to twenty grains of tannic acid are dissolved in from one to two quarts of hot water (101° to 103°). To this are added thirty to forty drops of laudanum and fifty grains of gum arabic. In this stage he gives no medicine internally, but little to drink, though the patient may have a small quantity of cold water and a little red wine or champagne. He may also have lactic acid or hydrochloric and lemonade, or ordinary lemonade with cognac. The earlier the treatment is begun the more beneficial the results. The indications present in the second stage of the disease counteractions

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and excretion of the poison in the blood, and a prevention or correction of the thickening of the blood is best met by the subcutaneous or intravenous injection of salt solutions. (For method see November issue of the MAGAZINE, pages 188 and 189.) The third or reactionary stage is also best treated, after all diarrhea and vomiting has stopped, by the administration of water, wine and cognac in small quantities at a time, frequently repeated, but he believes the conditions will be greatly helped by continuing the subcutaneous and intestinal injections of water, either acid or a salt solution.

SULPHONAL POISONING.

The *Wiener Klinische Wochenschrift*, No. 36, 1892, publishes the following abstract of GEOLLE'S article read at the Chemico-Physical Society of Vienna:

(1) The peculiar red-brown color of the urine after sulphonal poisoning is due to the presence in the urine of hematoporphyrin.

(2) For the discovery of hematoporphyrin the spectroscope may be used, the substance showing in solutions of hydrochloric acid and ammonia.

(3) A useful clinical test is the precipitation of the coloring matter by an alkaline solution of chloride of barium, and treatment of the precipitate with alcohol containing hydrochloric acid. The resulting solution is marked by the presence of the absorption bands.

(4) It is doubtful whether the substance circulates in the blood or not.

(5) After sulphonal intoxication there is a trace of albumin and a few renal elements in the urine.

(6) A small amount of unchanged sulphonal may be found in the urine.

(7) The greater part of the sulphonal is excreted in the form of soluble ununited sulphuric acid.

(8) Neutral sulphur compounds cannot be discovered in the urine.

From these observations the author concludes that the sulphonal must be stopped as soon as the color due to hematoporphyrin appears in the urine.

THE ALBUMOSES AND TOXALBUMINS SECRETED BY THE BACILLUS OF ANTHRAX.

HAUKIN and WESBROOK (*Annales de l'Institut Pasteur*, No. 9, 1892), after an elaborate and careful study of the albumoses and toxalbumins produced by the anthrax bacillus, came to the following conclusions:

(1) The anthrax bacillus is capable of producing a proteolithic diastase. This diastase acts upon proteid matter, accompanying it with the formation of albumoses. These albumoses have no power to confer immunity.

(2) The bacillus of anthrax is capable of producing another albumose directly, without the intervention of a diastase.

(3) We have been able to procure this albumose in a relatively pure state, that is to say, without the albumoses of digestion, by cultivating the bacillus in a solution of pure peptone.

(4) This latter albumose, in very small doses, confers on mice the power to resist the anthrax, power that often reaches complete immunity, but more often manifests itself by a considerable survival of resistance.

(5) This albumose, in ordinary doses, does not produce any symptoms of poisoning in animals susceptible to anthrax poisoning.

(6) In animals that have a relative immunity from the poison of anthrax, as the rat, the frog and the crayfish, this albumose acts as an energetic poison.

(7) Young rats, on the contrary, usually susceptible to the poison of anthrax, are not poisoned by this albumose.

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SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

A Cause of Prostatitis.

Irwin (*Medical and Surgical Reporter*, November 19, 1892) says that within the last eighteen months he saw five cases of prostatitis which could be directly traced to the pressure on the gland by the saddle of a bicycle. Four of these subjects had passed middle life, and one was still in his teens. In all cases the phenomena presented were similar in character, and a description of one will suffice for all.

After riding the bicycle for a few hours the act of micturition felt as if the vesical end of the urethra was raw, then a full feeling behind the scrotum came on, unattended by pain. There were also inordinate and persistent erections of the penis, which coming on at short intervals, and lasting three or four days, was the most unpleasant feature observed. The urethra felt raw during micturition and tender on pressure; weight and some dull pain were felt in the testicles. There was no discharge from the penis at first, but after two or three days a little moisture was observed. The discharge seemed to be very thin and colorless. The desire to void urine more frequently was present.

Under the use of saline laxatives and the removal of the cause the cases responded to treatment in from five to seven days.

A New Method of Making an Artificial Anus.

Chaput (*Archiv Général de Medicin*, 1892) describes a new operative procedure devised by himself for the establishment of an artificial anus. The parts in the left inguinal region are rendered anesthetic by means of cocaine, and an incision is made parallel to Poupart's ligament, and opposite the anterior superior iliac spine. The abdominal wall is to be cut through and the intestine brought into the wound. The intestine is then fixed on each side of the wound by means of pressure forceps. Each pair of forceps is so fixed so as to hold in apposition the intestinal wall, peritoneum, and the muscles in the lateral margin of the wound. Eight pairs of forceps are used; these are left on for twenty-four hours and then removed. The parts are washed with chloride of zinc solution, and covered with an antiseptic pad fixed with a bandage.

The same operation may be carried out after resection of the gut for tumors or for intestinal gangrene. Four cases have been operated upon by the author, three of them with good results. One died from the effects of intestinal obstruction.

Laminectomy for Pott's Paraplegia.

Lloyd (*British Medical Journal*, November 19, 1892) has collected the details of seventy-five cases of Pott's paraplegia treated by laminectomy. From the study of these cases he has come to the conclusion that laminectomy should be performed:

(1) In cases where posterior spinal disease has been made out as the cause of the paraplegia.

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(2) In cases where the lesion seems to indicate the failure of mechanical treatment.

(3) In cases where, during the employment of intelligently applied apparatus, the symptoms continue to increase.

(4) In cases where, after a certain period of mechanical treatment, say eighteen months, the condition has remained stationary.

(5) In cases where pressure myelitis threatens the integrity of the cord.

The operation is contraindicated where there are other complicating tuberculous lesions, and when mechanical treatment has not been applied. In all cases where sinuses lead down to, or can be straightened out so as to allow the probe to explore the abscess cavity with which they communicate, they should be enlarged so as to provide for free drainage, and if sequestra are present they should be removed.

The statistics of cervical cases are not so favorable as those in other regions, but the danger to life without operative interference is greater still. One case died from inhibition of the phrenic nerve.

On the Method of Esmarch and Bier for the Conservative Treatment of Tuberculous Joints.

Page (*Lancet*, November 10, 1892) reports that more than twenty cases have been treated by continuous passive hyperemia. The old observation that passive congestion of the lungs provided, or seemed to provide, immunity against tubercular infection, led to the suggestion that purposely-induced congestion might have like effect. If, for example, the part affected is an elbow joint, the fingers, hands and arms are bandaged up to a point immediately below the articulation, while directly above it the arm is next encircled with an inch wide elastic bandage, sufficiently tight to impede, but not arrest, the circulation, and so, presently, induce a passive congestion and swelling of the intervening zone. It is necessary to protect the skin from the direct pressure of the elastic band by a piece of lint, and the exact site must be changed from day to day. In most of the cases where this plan has been carried out, marked and rapid improvement had set in, and in no instance had any harm ensued.

Splints are not necessary, the limb being used as much as the circumstances of its imprisonment in bandages will allow.

Although the method of treatment is somewhat painful for a day or two at first, the part is soon free from discomfort of any kind.

Operations for Spina Bifida.

Bayer (*Centralblatt für Chirurgie*, No. 47, 1892) reports the results in fourteen cases of operations for spina bifida. Of these six were cured and eight died. As to the causes of death, two died of meningitis, one of bronchitis, one of bed sore, involving the scar of the old wound, and others from acute exanthematous affections, eclampsia and hydrocephalus.

The operation for spina bifida is indicated in cases which present a zona medullo-vasculosa with paralysis.

In cases where the skin over the sac becomes irritated.

Where there is a large opening into the canal the operation should not be done.

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The Treatment of Burns in Children.

Wertheimer (*Münchener Medicinische Wochenschrift*, No. 31, 1892) says that the good results he has attained in cases of burns and scalds he attributes to the use of thymol and carron oil and a salve composed of:

Bismuth subnit.	9.0
Acid. boric	4.50
Lanolin	70.0
Olive oil	20.0

These two applications are used during the first two weeks. They hasten healing and give immediate relief from pain.

The Choice between Extirpation and Colotomy in Cancer of the Rectum.

Kelsey (*New York Medical Journal*, November 12, 1892) says the choice between extirpation and colotomy in any case of cancer may be easy or very difficult. The operation dates back to 1830, when it was advocated and practiced by Lisfranc.

Van-Buren's rules were:

(1) The growth must be distinctly circumscribed, movable on subjacent tissues and within easy reach by an incision through the perineum. Kraske has given us an operation by which, in combination with the perineal incision, it has become possible to resect long pieces of the bowel.

It is now possible to amputate six inches of the rectum, or a circular carcinoma can be resected at a point six inches above the anus. Franks reported the results of fifty-one collected cases of removal of cancer of the bowel. One patient only in fifty-one was cured for four years, and the direct mortality was 41 per cent. In cancer of the rectum the cases are to be selected with care. The mortality will not be more than about 20 per cent.; but the cures for four years will be very, very few, and recurrence within a year will be the rule.

There are many cases in which extirpation should certainly be performed, and there are some which just as certainly should not be subjected to colotomy, at least not until excision has been tried. The former are those of extensive disease involving not only the rectum but the adjacent tissues.

The cases on which extirpation should be performed are those of epithelioma low down in the rectum, and more especially those that involve the anus, and secondarily the rectum. These are the ones curable by excision, or in which recurrence is longest delayed. Given twenty cases of annular scirrhus of the rectal pouch, colotomy will give the greater length of life.

In colotomy we do an operation with scarcely any risk but with no hope of cure. Life, however, invariably is prolonged and sometimes for several years, pain is relieved, the greatest length of days next to a cure is secured, and the sufferer is led gently down to the grave. Colotomy, especially inguinal, relieves pain, does away with the constant tenesmus and discharge from the rectum which, by their exhausting effects, are the immediate cause of death, delays the development of the disease by preventing the straining and congestion of defecation, prevents absolutely the complication of intestinal obstruction, which is another cause of death, enables the patient to sleep, eat and gain flesh, and often makes him think himself cured in spite of the plainest prognosis to the contrary. The author, in conclusion, says:

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(1) The operation of excision of cancer of the rectum has a very limited range of application.

(2) Kraske's incision, though enlarging the scope of the operation, has, on the whole, improved the results.

(3) In colotomy we have a method of treatment almost free from risk, and one that in any considerable number of cases will give a longer length of comfortable life.

(4) Extirpation is more often indicated in non-malignant than in malignant stricture, but even here the advantages over colotomy are not sufficient to justify the increased risk in grave cases requiring extensive operation.

THE FORCIBLE STRAIGHTENING OF ANGULAR DEFORMITIES OF THE KNEE BY MEANS OF SPECIAL MECHANICAL APPLIANCES.

GOLDTHWAIT (*Boston Medical and Surgical Journal*, December 1, 1892) says the angular deformities resulting from disease in or about the knee-joint may be corrected in four ways: (1) gradual traction with fixation; (2) rapid forcible correction; (3) osteotomy, usually above the condyles of the femur; (4) excision either of the whole joint or of a wedge-shaped piece from the lower end of the femur. The first method applies to deformities occurring in and presenting for treatment during the acute or subacute stages of the disease. At this time the condition is due chiefly to a spasmodic contraction of the posterior muscles, and immobilization combined with light extension will, in the majority of cases, be all that is required. Rapid forcible straightening is to be done in those cases in which, after the acute symptoms have subsided, the joint is held in malposition by fibrous adhesions. If these be slight they can be broken up with the hands and the limb straightened with comparative ease. In a certain number of cases, where the disease has lasted for a considerable length of time, the adhesions become so firm that they require more force to break up than can be applied by the hands.

Two deformities are almost invariably present, that is, flexion and luxation backward of the head of the tibia upon the femur. The former can be rectified with comparative ease, but with the latter mechanical appliances become necessary.

It was to meet this condition that Bradford devised the following instrument: The apparatus consists of a plate which is forced forward by means of a screw, carrying the head of the tibia with it, the counter-pressure coming upon the end of the femur by straps. After as much has been gained as possible in this way, the leg is straightened, the straps still being the fulcrum, and the head of the tibia is drawn forward into its normal position. Six or seven cases have been treated in this manner and with uniform satisfaction. Three of the six cases reported by the author had been strongly urged to have the leg amputated. Excision, which is done more commonly in this class of cases, mutilates the leg, and has a mortality, in young persons, of 9.42 per cent.

This is a marked contrast to rapid forcible straightening. Not only are there no fatal cases as yet, but the amount of constitutional disturbance as a result of the operation has been surprisingly slight considering the amount of force that is necessary to accomplish the result. There has been but a slight elevation of temperature in any of these cases, and the pain has not been at all severe. The leg is not shortened as a result of the operation, and recovery usually takes place, with a somewhat movable joint.

Three objections to the operation have been offered: The danger of starting up a severe acute arthritis; the liability of fracture of some of the bones about the

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joint; and the danger of injuring the nerves in the popliteal space. The first should be avoided by the selection of the case and the judicious application of the force. The second should not occur if the apparatus be properly applied and due caution observed in its use. The third, or the danger of injuring the vessels or nerves, is not apt to occur, because of the anatomical relation of the structures about the joint.

Immediately after the leg is straightened a plaster-of-Paris bandage is applied. The use of a little morphia is often required, and occasionally salicylate of soda, to control the joint pain.

Resection of the Lower and Upper Jaws.

Bardenheuer, in the *Archiv für Klinische Chirurgie*, Band 44, S. 604, gives a clinical lecture on resection of the jaws. In operating on the upper jaw the bone is resected and the defect in the palate closed by two flaps; one is formed from the inside of the cheek, this latter being split into two flaps, the outer being sutured to the skin below the incision. The other palate flap is taken from the forehead with a pedicle just below the ear. This flap is brought down and fitted in place in the roof of the mouth, covering the flap taken from the cheek. In partial resection of the lower jaw a rectangular flap with its base upward is made, equal in extent to the part to be removed. A flap is taken from the forehead and twisted around and laid in the wound in the mouth. The rectangular skin flap is then brought down and sutured in place. The object of these skin flaps is to promote healing and prevent cicatricial contractions. The patients on whom the author performed these operations recovered satisfactorily and the results were excellent; the unsightly depressions that are left by the usual operations were absent.

Resection of Gangrenous Intestine in Children.

Schramm, in the *Wiener Medicinische Wochenschrift*, No. 39, gives two cases of gangrenous hernia in children and discusses the treatment of such affections. The first case, that of a boy aged 12 years, was found to have gangrene of the gut, the hernia being inguinal and strangulated five days. Fifteen centimetres of the intestine were resected, the gut reunited with three rows of fine silk sutures and replaced. The ring was closed by Czerny's method and the wound closed without drainage. The patient had a passage from the bowels in two days, and in ten days left the hospital completely cured. The second case was that of a boy aged 9 years, sick six days with great pain and dulness in the ilio-cecal region. An incision was made in the right iliac fossa, which let out considerable blood-stained liquid. The strangulation was found to be caused by a band; this was broken through. It was situated about a foot from the cecum. A diverticulum four centimetres long was found, which ended in a cord four to five centimetres long. Eight centimetres of the gut, including the diverticulum, were excised and the intestine united with three rows of sutures. The operation lasted one and a half hours. The next day, the abdomen being still swollen and no passage occurring, the wound was opened, the intestine stitched to its edge and after being incised a drainage tube half a metre long inserted. This let out much flatus and two litres of feces. On the third day feces came per vias naturales, and twenty days after the operation the patient was allowed to depart with a small fistula still remaining. Three months later, to close the fistula, nine centimetres of the gut were again resected and sewed with three rows of sutures. From this operation the patient came near dying, but

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eventually recovered. The author cites the cases as showing that children bear resection in gangrene of the intestine very well, and claims that they show that in gangrenous hernia resection and enterorraphy is the correct procedure to adopt. He also advises that the section be made wide of the affected parts, and that the sutures be carefully applied.

EXCISION OF THE INNER TWO-THIRDS OF THE CLAVICLE FOR SARCOMA.

ARNOLD CADDY reports, in the New York *Medical Record*, November 19, 1892, the case of a man aged 26 years, in whom he resected the clavicle for sarcoma. The disease was of twelve months standing and followed an injury. The inner half of the bone was implicated and the superficial veins were slightly enlarged. There was no tenderness on pressure nor involvement of the glands. When the shoulder was shoved forward to its fullest extent the fingers could be pushed behind the growth. Periosteal sarcoma was diagnosed. An incision six inches long was made along the anterior border of the clavicle and another along the inner border of the sterno-mastoid muscle, commencing on a level with the cricoid cartilage and ending three inches below the sterno-clavicular articulation. The soft parts being separated, the bone was sawed through and its inner two-thirds removed. In taking out a portion of the growth behind the sternum, the pleura and innominate vessels were exposed, but not injured. The phrenic nerve was not seen and there was but little bleeding. Healing took place promptly and the man could move his arm well. The statistics of twenty-eight cases are given; the first one, that of Dr. Mott, of New York, living fifty-four years after the operation.

EXTERNAL ESOPHAGOTOMY FOR STRICTURE OF THE ESOPHAGUS.

In the *New York Medical Journal* of November 19, 1892, is a carefully written and illustrated article by Willy Meyer on the treatment of stricture of the esophagus. An interesting case is detailed, a new canula for feeding in cases of gastrostomy described, and the following conclusions submitted: 1. After swallowing acids, etc., sounding should be begun as soon as it can be made out that the internal wounds have healed, certainly not later than two to four weeks after the accident. This prophylactic treatment has to be continued at regular intervals for a long period—if necessary, for life. Gastrostomy can be primarily performed for this purpose. 2. If a stricture of the esophagus has developed and is impermeable by the mouth, the patient should be submitted to an operation as early as possible. No forcible dilatation or boring with the sound should be permitted. If the latter is done, the formation of a false passage is favored. The esophagus has thus often been perforated. 3. External esophagotomy for the establishment of a temporary fistula in the neck (esophagostomy) will be found useful and sufficient in many of these cases, especially in children. The stricture can be generally passed quite easily from this opening. A tube may be left *in situ* without the annoyances which are caused by passing it through the nose and pharynx. This operation is always indicated if, besides impermeable stricture in the lower portion of the esophagus, or behind the bifurcation of the trachea, a second (or third) one is present at a level with, or not far below, the cricoid cartilage. 4. In grown persons and those who are emaciated and require immediate forcible nutrition, primary gastrostomy, with subsequent retrograde soundings, may be preferable. 5. If the stricture has been successfully stretched, and if the same sound which passed from the wound in the neck can also be pushed down through the mouth, the fistula has to be closed. If gastrostomy has been performed, this second operation gen-

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erally requires laparotomy and separate sutures of stomach and abdominal wound. 6. In a number of cases there is a limit to stretching and divulsion, otherwise the repeatedly widened stricture rapidly recontracts. Then internal esophagotomy is indicated as the only means to cure the patient. 7. Internal esophagotomy, if performed under these circumstances, is a very dangerous operation, especially on account of our lack of means to render the operating field free of infectious material. 8. A thorough disinfection of the intra-thoracic portion of the esophagus seems feasible by first adding gastrostomy to external esophagotomy, and *vice versa:* then the operating field and the stomach can be cleansed by antiseptic irrigation before and after the operation. By thorough temporary antiseptic tamponade of the cardiac portion of the esophagus and of that between the fistula in the neck and pharynx, we may hope to guard against contamination of the wound. From a wound in the neck internal esophagotomy can be carried out in the same way and with the same instruments as used for dividing strictures of the anterior urethra from within. The division should be made in a retrograde way only, the knife being first passed beyond the stricture. A guide pushed up from the gastric fistula will help to accomplish this, even in obstinate cases. It may become necessary, especially in adults, to have an instrument of special length and sometimes also curved, constructed for this purpose.

The Treatment of Club Foot by Continuous Leverage.

Henry Ling Taylor, in the *New York Medical Journal*, November 19, 1892, p. 573, describes his method of treating equino-varus. His aims are: (1) Preservation of the heel cord as an aid in unfolding the foot. (2) Reduction of the varus first and then the equinus. (3) Exact prehension of the foot by means of an apparatus not attached to the shoe, and by adhesive plaster applied to the leg. (4) The application of leverage to the inner side of the foot and leg. (5) Thorough mechanical after-treatment. The varus is first to be overcome by applying a wooden or metal strip padded and strapped at the ends to the fore part of the foot and to the leg below the knee, while the ankle is drawn toward this line by a third strap placed a little above that joint. The tendo-Achilles may be divided to let the heel down, or a set screw at the ankle used for the same purpose. A steel shoe is now to be worn day and night. The heel is kept down in the shoe by a piece of webbing fastened to three adhesive straps applied to the leg. The lower end of this webbing is buckled to the inner side of the sole plate just behind the ankle joint. The author states that in most cases under six or eight years of age, and in many older subjects, the deformity can be reduced in a few weeks. The foot is then to be held in its corrected position from one to several years, while the patient goes about independently in his brace, which is concealed by his shoe and stocking. Inversion of the knee may be controlled by an apparatus reaching to the hip, and, if necessary, the addition of a hip band will regulate hip rotation. In spastic conditions tenotomy is positively indicated in addition to mechanical treatment. In calcaneous, ankle flexion is prevented by a stop at the ankle joint of the apparatus, while the weight of the body in standing and walking is transmitted from the anterior end of the sole plate through the apparatus to a broad band passing in front of the head of the tibia.

Vertebral Drainage in Pott's Disease.

In the *Revue Générale de Clinique et de Therapeutique*, No. 34, p. 533, Tournier gives a resumé of Vincent's (*Revue de Chirurgie*, No. 4, 1892) mode of treat-

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ing Pott's disease by operation. It is only performed at an advanced period in the malady when other treatment has failed. It is indicated in cases of abscess and paraplegia, and is not applicable except in the dorsal and lumbar regions. When kyphosis is marked, drainage is made from one side to the other in the sinus in front of the vertebræ. When it is not marked the column is trephined horizontally (transvertebral drainage). The steps of the operation are as follows: (1) Vertical incisions of eight centimetres along the internal border of the spinal muscles. (2) Horizontal incisions of five centimetres perpendicular to the first in the intercostal space in the neighborhood of the most prominent spinous process. (3) Resection of one or more ribs to permit exploration and passage of the drain. (4) Similar incisions to be made on the opposite side of the spine. (5) Separation of the intercostal muscles, detachment of the pleura and tissues with the fingers and director until the point of flexion is reached. (6) Passage of the tube with a curved probe, or, if necessary, tunneling the body of the vertebra with a sharp curette. The wound is then cleansed and the skin sutured.

Experimental Researches in Reference to Cerebral Compression.

Deucher, in the *Deutsche Zeitschrift für Chirurgie*, Bd. 35, S. 145, gives the results of his experiments on the effects of pressure on the brain. Compression was made by the injection of paraffin or the introduction of a distensible small rubber balloon. He submits the following conclusions:

(1) Symptoms designated as cerebral compression follow a lessening of the brain space, which results in circulatory disturbances.

(2) A local lessening of the space in the closed cerebral cavity is evidenced by (*a*) local irritation and paralytic symptoms; (*b*) by the typical symptoms of so-called pressure such as is now understood to follow increased pressure of the cerebro-spinal fluid.

(3) A local lessening of the space may, by the possibility of a free loss of cerebro-spinal fluid, show itself in the same way.

(4) The symptoms of general brain pressure are in both the above cases—(*a*) in the beginning stage: pain, temporary increase in the respirations, and temporary increase in the blood pressure; (*b*) in the irritative stage; slow, large pulse, slow, deep respirations, increased blood pressure, coma; (*c*) in the paralytic stage; frequent, small pulse, falling of blood pressure, superficial and slower respirations; (*d*) death with primary suspension of respiration.

(5) The freely-communicating cerebro-spinal fluid is not necessary for the production of cerebral compression, but it is necessary for the brain substance itself to receive the pressure.

(6) In brain pressure there is an alteration in form of the compressed portion of the brain.

(7) Larger injections and longer-continued pressure is necessary to cause symptoms of compression when the skull cap is opened and the cerebro-spinal fluid is allowed to escape than when it is confined.

(8) The treatment of cerebral compression with closed skull is to trephine and remove the compressing body, and provide for a free escape of the cerebro-spinal fluid.

(8) In endeavoring to produce symptoms of cerebral compression in animals, rabbits are unfavorable subjects and laminaria an unreliable substance with which to reduce the amount of space.

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The Modern Treatment of Joint Tuberculosis.

Professor König, in the *Archiv für Klinische Chirurgie*, Bd. 44, S. 592, gives a *resumé* of the treatment of tuberculous affections of the joints. Believing that bone tuberculosis is only a metastasis of the disease elsewhere, the author in 1883 made post-mortem examinations which showed that in four-fifths of the cases there were foci of infection. A radical cure is only to be obtained by causing the disappearance of all manifestations of the disease in the bones as well as from all other organs of the body. This, as yet, it has been found impossible to do, and it is the object of the surgeon to remove the local manifestations or local tuberculoses. To do this, operations such as amputations, extirpations, curetting, etc., are done, and treatment by injections of iodoform, guaiacol, Peru-balsam, etc., and the employment of orthopedic apparatus, rest, pressure, extension, etc. Resection of a joint is not to be resorted to early, but when a diagnosis of tuberculous necrosis or infiltrating tubercle has been firmly established. It is not too much to say that to-day a good half of the diseases of the joints, with our better orthopedic and physical treatment, after a time become cured. Coxitis is cited as an example, six months to two years of treatment being required. In cases with hydrops articuli or suppurating synovitis, resection was the universal procedure, but now the main means of treatment is by injection of iodoform. Some very bad suppurating cases have healed rapidly under this treatment. Out of 410 cases of tuberculous hip joints, 200 were treated conservatively and 210 operated on. Nineteen per cent. died of tuberculosis later. When marked tuberculosis of the bone exists operation is the best plan of treatment. Amputation of a part is necessary at times, particularly in elderly people. Injection of the joint leads to cure in 20 per cent. As regards resection, out of 100 cases collected in 1888 six died from the operation, six died in the next month, and sixty-four were healed and sixteen were unhealed; eight were amputated. Partial operations on the joints, with the removal of local foci of disease, is advised in children, but is usually not radical enough for older patients. The author closes by saying that it is not possible to obtain an ideal cure, but that we nevertheless have medicaments and operative measures which will radically cure local manifestations, and one does not disdain to render the tuberculosis latent and the joint again useful.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D.

ASSISTED BY

DAVID CERNA, M.D., PH.D.

Pental as an Anesthetic.

Holländer (*Centralblatt für Chirurgie*, No. 47, 1892) gives his results after the long-continued use of pental as a narcotic.

Pental is, in all cases, an active anesthetic, and differs from bromether from the fact that the latter often remains inactive. The anesthesia is always slow, but lasts longer than bromether. There is ordinarily but little excitement, and vom-

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iting as yet has not been noticed. The heart beat and respiration are always increased, and in anemic persons the pulse often becomes very weak. Two or three cubic centimetres is a sufficient quantity to begin with, and ten generally completes the narcosis. By highly excitable and very anemic persons with weak hearts its use is not so good as in healthy persons.

The best method of giving is by Junker's apparatus, because there is no danger of its going into the eyes; only small quantities are required, and the disagreeable odor is but slightly noticed. In from one to three minutes narcosis is generally complete.

The author highly recommends it for all short operations.

Asaprol.

Stackler (*Bulletin Génerale de Thérapie*, 1892) has a note on his new antiseptic. Asaprol is a calcium salt of naphthol and monosulphonic acid, and occurs in the form of a white powder, very soluble in water and alcohol. The tests for its presence in the urine are the same as those for naphthol. Asaprol is a toxic to rabbits in the proportion of fifty centigrammes to each kilo of body weight. Smaller doses are well borne. It has been tested clinically in two cases of influenza, with high temperature and great pain, with the greatest success. In one case all symptoms were relieved in thirty-six hours, and in the other in forty-eight hours, although quinine and antipyrine had been given without avail. The drug proved equally efficient in the various forms of rheumatism, especially in the acute articular variety.

The drug has also been used with good results in gout, asthma, furunculosis, anthrax, various infective conditions, tonsillitis, etc. Gradually increasing doses are recommended. Thus, for adults the dose will be two grammes on the first day, three on the second, and four on succeeding days, to be again gradually reduced when the anti-thermic action has been obtained. The drug should be given with plenty of water, so as to encourage diuresis. It may also be given by the rectum in doses of from two to seven grammes. The drug is incompatible with alkaline iodides, sulphates, and with most of the alkaline salts.

The Use of Strontium Salts in Cases of Parenchymatous Nephritis.

Germain See (*La Semaine Medical*, No. 41, 1892) reports the use of strontia salts in certain forms of nephritis. The treatment is carried out by means of bromide of potassium and bromide of strontium, sixty grains on alternate days. Often in twenty-four hours the quantity of albumin is greatly reduced.

Tannin and Boric Acid in Dysentery.

Liebersohn (*Vratch*, No. 38, 1892), reports two cases of severe acute dysentery which were treated by hot enemata of tannin and boric acid. The results seem to show that the injection speedily arrested the intestinal hemorrhage and quickly restored the natural character of the passages. Pain and tenesmus were immediately relieved and the course of the disease materially shortened. The enemata were given every three hours, each consisting of one fluid pound of a four per cent. solution of boric acid, ten grains of tannin and three and three-quarter drops of tincture of opium, the whole to be dissolved in a tumbler and a half of hot boiled water. The injecting fluid was retained in the bowel for one or two minutes.

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Bromide of Strontium in Vomiting.

Coronedi (*Lo Sperimentale*, 1892) has tried bromide of strontium in a number of cases of vomiting from various causes. The preparation is most successful as a gastric analgesic in vomiting of nervous origin.

It is given in doses of two grammes twice daily immediately before meals.

Its mode of action appears to be that of the other bromides, causing first diminution of the excitability of the nervous centres, and then of the nerve endings in the stomach. Of the bromides, that of strontium contains the least proportion of bromide; it seems, therefore, that some of the analgesic effect is due to the metallic element.

Agathin, a New Anti-Neuralgic.

Ross (*Deutsche Medicinische Zeitung*, No. 50, 1892), reports his results of the use of agathin in relieving pain. It produces no evil effects by long-continued use. It is tasteless, insoluble in water, but soluble in alcohol and ether, and melts at a temperature of 74° Celsus. The best results are obtained by the use of one-half gramme three times daily. In the pains of neuralgia and rheumatism it is especially valuable. Often from four to six grammes are required before the full effects are noticed.

Oxychinaseptol, or Diaphterin.

Lembach and Schleicher (*Correspondenz-Blatt fur Schweizer Aerzte*, November 1, 1892) report the discovery of a new antiseptic. As a germicide it is better than phenol and lysol in the form of a 2 or 3 per cent. solution. Instruments that are not nickeled are blackened by its use. It has the advantage over carbolic acid from the fact that it is easily transported, either in the form of powder or tablets, and its peculiar yellow color prevents it being mistaken for any other preparation. It is chemically clean and its action easily controlled. The preparation is not poisonous. A watery solution is perfectly clear and there is no evaporation. Kronacher recommends its use in surgery in strengths of one-half to 2 per cent. solutions. It is a most excellent dressing in cases of burns. There is never any irritation about the edges of wounds after its use, but occasionally patients complain of a slight burning sensation. The solutions do not affect the hands of the operator as do sublimate and carbolic solutions. Its greatest application is to be found in the treatment of nasal and aural troubles.

Fuchsin Ointment in Paget's Disease.

Elliot (*Journal of Cutaneous and Genito-Urinary Diseases*, 1892) relates a case of Paget's disease in which remarkably good results were obtained by the application of fuchsin ointment. The raw exuding patches healed, the entire surface being transformed into an area covered with a thin epidermis, cracked and fissured in places, with only a few points of exudation here and there. The characteristic granular appearance had become cicatrized in a space of from one-half to one inch around the affected part, the infiltration and scaling having completely disappeared and been replaced by a more or less pigmented surface.

The formula employed was fuchsin, 1½ grains; lanolin, 1 ounce; aquæ rosæ, 7 drachms. The ointment was spread an eighth of an inch thick on stout linen, accurately applied to the part, and a thin layer of absorbent cotton was put over it. The dressing was changed twice daily. The strength of the fuchsin was gradually increased, but it was found that if more than five grains were incorporated in the ointment irritation was caused.

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Experiments upon the Absorption of Creasote in Tuberculosis.

Ferrari (*Revista Generali di Clinica Medica*, June, 1892), says that the best method of giving creasote is by means of the hypodermic syringe. Absorption through the bowels is greater than from the stomach. Absorption by the lungs is of so little value that it should only be used when the drug cannot be given in any other way.

In private practice it is often very inconvenient to give the drug subcutaneously; it can then be given by the rectum, either as a clyster or in the form of suppositories containing a gramme or less, according to the case. This does not cause any irritation of the rectal mucous membrane.

Thymol as an Anthelmintic Remedy.

Sonsino (*Lancet*, November 19, 1892), says that thymol was first used in medicine by Bozzolo against the anchylostoma. It was employed frequently for the filaria sanguinis hominis, but Crombie proved that ten grammes per diem for three successive days were not enough to cause the disappearance of the embryo filaria from the blood. The author insists that its efficiency in anchylostomiasis cannot in any way authorize us to proclaim it a universal anthelmintic. The only worms that have been seen to pass after the administration of the drug were the ascaris lumbricoides, oxyuris vermicularis, and the trichocephalus dispar. In cases of the ascaris it is not so valuable as are other drugs; but for the oxyuris there is no drug that will so completely eradicate them from the system as thymol. Respecting the tricocephalite, difficulty of procuring their expulsion is well known. Its value in cases of the large tapeworm is very questionable, in the author's case no results being obtained.

The best plan of administering it is either in the form of powders, or in wafers or cachets.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D., AND FRANK W. TALLEY, M.D.

Fever During Labor.

Winter (*Zeitschrift für Geburtshulfe und Gynäkologie*, Band XXIII, Heft 1) calls attention to the fact that the uterus, like any other muscle, produces by its contractions energy, and engenders heat, which at first is only local, but finally becomes general through the circulation. This increased temperature is regulated by the constant giving off of heat through the rapid breathing and the uncovering of the parturient woman. In contrast to this normal elevation of temperature *intra-partum*, which is lower in the period of expulsion than in the beginning

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period and after birth period, is the fever in labor, of which Winter has collected 100 cases from a large polyclinic material. He classes these cases in two groups: (1) Increased heat production through excessive activity of the uterus and muscular action; (2) infection.

Of the forty one fever cases of the first variety twenty-one were I-paræ. In seven cases the temperature was above 102°; in all there was a reduction of temperature *post-partum*, frequently to normal. In multiparæ with normal pelves and yielding soft parts fever was seldom seen. It was frequent in stenosis of the soft parts, and most frequent in narrow pelves, as here very powerful pains are necessary to overcome the resistance at the entrance of the pelvis. The pulse became rapid in proportion to the increase in temperature. Labor in narrow pelves and faulty presentations disposed to rapidity of the pulse. In fifty-three cases the fever was referable to infection; common to all of these was an excessively long duration of labor. In only two cases did fever occur where the membranes were unruptured. Winter believes that ptomaines from the decomposing matter give rise to the fever; that it is a fever of intoxication, and not of infection. He considers two forms: In the first the temperature rises slowly to about 101° F., falls, if the labor lasts long, again to be elevated. In this form chills are rare. In other cases the temperature rises and soon falls slowly; rises anew to sink again. In these cases the remissions may reach the normal point; the temperature seldom remains long at 103° F. The second form is characterized by much higher temperature. In seven cases it was over 104° F., and also after labor it rises still higher. In sixteen cases chills were noticed. *Post-partum* they occurred most frequently after the conclusion of operative measures and intra-uterine injections. Winter believes the chills indicate the incorporation of a greater mass of toxic material at one time. The pulse during the intoxication is increased in frequency beyond the temperature, and increases in frequency before the temperature begins to rise. Regarding the diagnosis of infectious fever from the functional, Winter states: Tympania uteri with stinking discharge, temperature above 104° F., chill, great incongruence between pulse and temperature, prolonged labor with weak pains and early ruptures of membranes, indicate infection. The fever from abdominal uterine activity is of favorable prognosis for the mother. Infection *intra-partum* is a progressive product of decomposition that gradually advances and never spontaneously recedes, if the labor, spontaneously or by assistance, does not give free exit to the decomposing matter. Only when the labor is ended, so long as the walls of the uterus are not yet infected, is the patient in little danger, while later mostly general sepsis enters. Twenty per cent. of children are killed by fever in labor. It is not the high temperature, but the process of decomposition in the uterus that is so deadly. Winter advises, relative to the treatment of fever during labor, above all, the exact investigation of temperature and pulse. In functional fever it is best to wait; if the diagnosis of infectious fever is yet doubtful, he operates only when all the requirements for an easy operation are fulfilled. In certain cases of infectious fever he delivers in the interest of the child so soon as the soft parts permit it. Tympanitic distension and continued high fever indicate an immediate delivery in the interest of the mother. In all simpler cases he waits expectantly. After the labor Winter washes the uterus, with the yet adhering placenta, with two or three liters of antiseptic fluid, and with the same quantity after the placenta is separated. As injecting fluid he uses sublimate, 1-5000; carbolic acid, usually 3 per cent.; lysol, ½ to 1 per cent.

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Osteomalacia.

Sternberg, of Vienna (*Wiener Klinische Wochenschrift*, No. 44, 1892), warmly advocates phosphorus treatment for osteomalacia, and records the notes of three cases so treated. The first case was that of a woman who suffered from pain in the sacral region during her fourth pregnancy. After labor the pain disappeared. In the fifth pregnancy violent sacral pain reappeared, rendering walking difficult. The pain continued after the termination of pregnancy, and legs and breast were likewise affected. The patient when seen by Sternberg had been confined to bed for a year, and evinced a high grade of osteomalacia. She was ordered:

℞. Phosphorus . . . . . gr. j
Ol. morrhuæ . . . . . ℥ ij
M. S.—Teaspoonful daily in divided doses.

After ten months' treatment in hospital the deformed soft bones were perfectly hard and the woman could walk long distances.

In the second case the trouble began in the fourth pregnancy, disappearing after labor. In the fifth pregnancy the disease returned with renewed violence, quickly reaching such a grade that the woman, nearly the entire period of her gravidity, was forced to remain in bed. After labor the patient could not raise herself from the bed. About a year and a half after she came under observation. As a pulmonary complication contraindicated castration, she was placed upon the phosphorus treatment, with rapid amelioration of the symptoms. In three months she could leave her bed without assistance, and soon could walk a few steps.

The third case gave indications of the trouble in the third puerperium. In the eighth pregnancy she experienced pains in sacrum and lumbar region, but grew better after labor. The ninth pregnancy also showed an exacerbation. After the labor following this, which was difficult, she suffered from pain and difficulty in locomotion. Six months later, when she came under observation, the pelvis was very yielding, and she evinced severe osteomalacia. Under the phosphorus treatment the patient could in four months walk and assist in the ward duties. In this case there was a relapse, owing to the phosphorus being omitted from her mixture, from which she rapidly recovered on being again placed upon treatment.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.

ASSISTED BY

WILLIAM A. CAREY, M.D.

Early Diagnosis Essential for the Cure of Uterine Cancer.

Wm. Goodell (*Medical News*, December 10, 1892) comments upon a year's additional experience with the operation of vaginal hysterectomy for the cure of uterine cancer. Instead of changing or modifying the views expressed a year ago, his experience has served to still further confirm them, and he unhesitatingly urges this operation in every suitable case. In answer to the question, What is a suitable case of uterine cancer? it is stated that it is, firstly, one in which the womb

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is movable; and, secondly, one in which an operation promises well both in its immediate and in its remote results. Therefore, a suitable case is one in which the womb is not fixed, the vagina is free from all carcinomatous nodules, and the broad ligaments show no signs of infiltration—in other words, a case in which the neoplasm is limited wholly to the womb. In such a typical case the operation is easy, safe and curative. Unfortunately, however, in the great proportion of cases that present themselves for the first time, the disease has advanced too far to be benefited by this operation. The growth has probably crept up the cervix and invaded the bladder or the vagina, or has traveled along the broad ligaments and deposited its germs outside of the uterus, causing fixation of the womb, and firmly sealing to it the bladder and vagina. When such an advanced stage of disease confronts the surgeon he must either reject the case or perform a dangerous operation, which will simply be palliative and not curative. Success in the treatment of these cases, depending so much upon the prompt recognition of the presence of the disease, the physician should be on the alert to observe its earliest symptoms. The disease begins, as a rule, in the vaginal portion of the cervix, because this part of the womb bears the brunt of the injuries sustained during coition and parturition. The cancerous nodule or ulcer starts usually at the notch of a torn cervix, and it is, therefore, most common in women who have borne children. The author does not recollect having seen more than one case of cervical cancer in a virgin, and not more than three cases in sterile women. The development of cancer in one of these sterile women was explained by the injury done to the cervix in delivering a large fibroid.

The ordinary symptoms of carcinoma in the usual order of their appearance are pelvic pain, ichorous leucorrhea, hemorrhages, fetid discharges and general cachexia. While these symptoms are characteristic, some of them may be absent, or their sequence may be variable. Thus pain may not be present, and attention may first be attracted by the occurrence of hemorrhages, or by the general cachexia, which should properly be the final symptom.

A common mistake with physicians and the laity is to place too much stress upon the occurrence of pain and fetid discharges. These symptoms, while present in the vast majority of cancer cases, are not apt to appear until the disease has advanced too far to be benefited by radical treatment. Pain is not likely to be annoying while the disease is confined to the cervix, but after the sensitive endometrium or the adnexa have become involved the pain is at times excruciating.

In reference to the significance of vaginal discharges, the writer says that in the early stage of cancer these are often free from odor and cannot be distinguished in any respect from any ordinary leucorrhea. Later on they usually become tinged with blood like meat-washings, but even then they may be free from putrid odor. The first appreciable manifestations of the disease are probably irregular hemorrhages. This condition in a woman who is over thirty-five years of age and has borne children should awaken suspicion. Also a show of blood following coition should be regarded as a suspicious symptom, as it indicates that the penis hits an open sore. Menorrhagia and metrorrhagia, or the dribbling of blood after some unusual exertion at the climacteric period, are warnings of grave import. "But perhaps the most significant danger signal of all is the counterfeited renewal of menstruation after its cessation."

The climacteric must not be regarded as an entity which can produce hemorrhages. The carcinomata, polypi, fibroids and uterine vegetations are the entities which assume great activity about this period of a woman's life and produce the bleeding. Such symptoms demand a vaginal examination. In its earliest stages a carcinoma of the cervix usually appears as a hard nodule under the mucous coat

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of a torn cervix. Soon this breaks through its envelope and forms an open and indolent ulcer. Usually the diagnosis is easily made, but sometimes such a condition cannot be distinguished from the exuberant granulations of a badly-torn cervix or a syphilitic ulcer. It is, however, not difficult to recognize cancer by the crater-like sore, with its sharply-defined edges, friable and hemorrhagic granulations and the dense hardness of the surrounding cervical tissue. In the large majority of cases of uterine cancer the cervix is primarily affected, but the disease is also met with in the endometrium or body of the uterus. When occurring in these situations it is in the form of sarcoma, papilloma or epithelioma. Senile endometritis tends to this form of malignant degeneration, and had better be promptly treated by curettage and subsequent packing of the uterine canal with iodoform gauze. Old maids and sterile wives are usually the victims of this form of cancer. These cases of cancer of the body of the womb are usually more successfully dealt with than are those cases in which the disease begins in the neck. The disease is less likely to return for two reasons: first, from its position it is not so apt to rapidly invade adjacent structures; and, second, because the woman being usually past the climacteric period, is not liable to those monthly pelvic congestions which make the womb so vascular and succulent. In summing up the author insists upon the necessity of a vaginal examination in every case that complains of untoward or unwonted pelvic symptoms. If the cervix is sound and the discharges, whether bloody or leucorrheal, come from the uterine cavity, the curette must be used as an aid to diagnosis. The microscope may help in making a diagnosis in some doubtful cases. If, happily, the diagnosis has been made early enough to find the disease limited to the womb, the physician's duty is to urge its immediate removal.

Extirpation of the Uterus for Cancer; Consideration of Ultimate Results.

Charles A. L. Reed (*American Journal of Obstetrics*, December, 1892) records his experience in twenty-five cases of complete vaginal extirpation of the womb for cancer. There were two primary deaths, one due to shock and the other one due to iodoform poisoning.

Fourteen of the series had been operated upon more than two years ago, and only these were considered with reference to ultimate results, some of the others being too recent for such consideration.

These fourteen cases might be divided into two equal classes, viz., those in which the disease had existed for more than six months before the operation, and those in which it had existed for less than that time before operation. The average length of time of the existence of the disease previous to operation in the first class was over ten months, and all of those cases had died. Of the seven cases in the second class, in which the average duration of the disease before operation was less than five months, only one has since died. One of these recoveries is of more than five years' standing.

The author urges prompt surgical interference as soon as the diagnosis of cancer is made, and considers total extirpation of the uterus as the only operation of value. The mortality of this operation in experienced hands varies from 5 to 8 per cent.

After-treatment of Cases of Abdominal Section.

Christopher Martin (*The Birmingham Medical Review*, December, 1892) in an incomplete paper upon the above subject, supposes an uncomplicated case of

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ovariotomy in a youthful and strong patient, with no adhesions, a good pedicle and no need of drainage tube. The less such a case is interfered with the better. In reference to the dressings, the author thinks they should be of the simplest character. The wound is dried and then dusted with powdered boric acid, a pad of absorbent (gamgee) tissue is laid on the wound and secured with adhesive plaster, and an abdominal binder is pinned over this. Whenever the pad is soiled it should be changed. This dressing is sufficient until the sixth day, when the stitches are removed, and then a strip of lint spread with zinc ointment may be laid over the wound.

The bladder must not be allowed to become over-distended, and when the patient is unable to void urine the catheter must be used at intervals of about six hours. The instrument must be kept scrupulously clean, and when not in use must be kept always under water, thus avoiding the complication of a cystitis. In order to prevent tympanitis the nurse should assist the passing of flatus by the introduction, from time to time, of a "flatus tube," when the patient is unable to relieve herself of the accumulation of gas. The style of flatus tube recommended resembles a glass test tube, curved slightly so as to slip easily into the rectum, rounded at the end, and with a large hole on one side half an inch from the end. Such an instrument greased and gently introduced into the rectum will often bring away a surprising quantity of flatus. If no distention occurs, the bowels need not be moved until the evening of the fourth day, when a mild saline aperient may be given. After this the bowels may be moved daily by a soap and water or glycerine enema, if necessary.

In referring to diet, the rule is inflexible that for forty-eight hours the patient must be starved—not even a spoonful of water must be swallowed—and the intolerable thirst, which so often is present, can be allayed by an occasional rinsing of the mouth with warm water. On the morning of the third day after the operation she may have, in small sips, half a tumbler of milk with an ounce of lime water, and about mid-day this may be repeated. During the afternoon of the same day some weak tea, with milk, and a little dry toast may be given, and during the evening a small bowl of gruel or arrow-root, with probably a tumbler of milk later during the night. On the fourth day, in addition to this, she may have beef tea or chicken broth during the forenoon, and a little milk pudding, and on the following day fish for dinner; on the sixth day, chicken; on the seventh day, meat; and on the eighth day, fruit and vegetables.

This dietary is obviously intended only for those patients who convalesce without complications. If everything has progressed favorably, the patient may sit up in bed for an hour on the fourteenth day, and get out of bed for an hour on the next day. By the end of three weeks she will be able to take a drive or leave home. Before sitting up the patient must be measured for an abdominal belt, which must be worn day and night, a lighter one being preferable for night use, The patient must be told of the dangers of ventral hernia, and urged to wear the belt for about two years. She must also be instructed about the avoidance of muscular exertion. Keep the bowels regular, and suspend the marital relation for at least three months.

Primary Carcinoma of the Labium.

Zeiss (*Centralblatt für Gynäkologie*, No. 40, 1892) records such a condition in a patient 38 years of age and the mother of three children. The woman came under his observation about five years ago and appeared in good health. Some four months previously she had noticed a small growth, which began to cause pain

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shortly before she applied for treatment. The growth was in the posterior part of the right labium minora and was ulcerated on its inner aspect. The disease appeared to be limited to that part, and Zeiss amputated the entire labium with Paquelin's cautery. In about two years after this the woman become pregnant, and in due time was delivered of a child which she suckled. During lactation she was annoyed with a pain and swelling in the left breast. The swelling gradually increased during the next year and proved to be scirrhus, with involvement of the axillary glands. About five years after his first examination Zeiss again examined the woman and discovered an advanced stage of epithelioma of the cervix, with such involvement of the tissues that hysterectomy could not be performed. The patient was much emaciated, and plainly showed signs of malignant disease.

Treatment of Cystitis.

H. C. Wyman (*The American Therapist*, December, 1892) says that doubtless every case of cystitis could be traced to a microbic origin. The microbes may have been introduced through the use of instruments, through the presence of a calculus or other foreign body in the bladder, which by its mere presence may cause sufficient irritation to produce conditions favorable to the growth of micro-organisms, the organisms gaining entrance to the bladder with the urine; and third, germs planted there by gonorrhea. Removal of any foreign body or cure of gonorrhea is in the line of treatment. In other cases, when the symptoms are kept up by the presence of micro-organisms, the first indication is to keep the urine as bland as possible; second, to diminish bladder irritability and thus prevent the excessive secretion of mucus, and third, to use germicides. For the first indication the use of balsam of copaiba, buchu, cubebs, kava-kava, pichi, thuja occidentalis, ether and chloral-hydrate is to be recommended. In giving copaiba it may be advantageous to combine it with an alkali in the form of carbonate of potassium or sodium in order to have it agree well with the digestive organs.

The fluid extract of pichi is given in doses of ten to twenty drops combined with the citrate of potassium. Kava-kava and thuja occidentalis in similar doses may also be given with advantage, but in using any of these drugs it must be remembered that in order to gain good results the doses must be frequently repeated, say every two or three hours, during the greater part of each day. One common cause of failure in treating these cases of cystitis is that medicines are given too infrequently.

Copious drinks of sterilized water also aid in rendering the urine bland, and aid in elimination of the products of digestion and waste thrown out by the kidneys. For the reduction of the bladder irritability nothing acts so happily as morphia in one-eighth grain doses about every four hours. This is particularly useful in overcoming tenesmus. Suppositories of one grain of opium and two grains of camphor, introduced into the vagina or rectum every six hours, will ameliorate the distressing symptoms in many cases, and the opium administered by suppository has a more lasting effect than when given by the mouth. For the removal and destruction of micro-organisms in the bladder there must be injected a germicide which will check the growth of the germs and yet not be dangerous to the patient. Such a drug is found in the peroxide of hydrogen. Diminishing the quantity of mucus formed in the bladder by the above measures is very helpful, for the germs require mucus to thrive in, and by checking this secretion the multiplication of germs is checked. In using peroxide of hydrogen a fifteen volume solution should be diluted one-half, and just previous to injecting it the

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bladder should be cleaned by injecting a warm alkaline solution, made by dissolving a teaspoonful of salt and half as much bicarbonate of soda in a quart of water. A large catheter with several large holes must be inserted before injecting the peroxide, in order to carry off the detritus resulting from the action of the drug upon the mucus, pus and micro-organisms contained in the bladder. The use of peroxide of hydrogen gives rise to none of the dangers which occasionally result from strong injections of nitrate of silver, etc., and the action upon the germs and tissues is just as satisfactory.

Floating Kidney as a Cause of Pelvic Troubles.

Thiriar (*Centralblatt für Gynäkologie*, No. 42, 1892) states that movable kidneys have been found by him in 20 per cent. of his gynecological cases, and he believes that such a condition is frequently the cause of pelvic disturbances which are attributed to other causes. He removed the kidney from ten patients who had been treated in various ways for their ailments, some by curettement, others by castration and one by vaginal hysterectomy without relief, until nephrorrhaphy was performed, when the symptoms entirely disappeared. The explanation of the origin of the symptoms is thought to depend upon the anatomical relationship of the vascular and nervous supply of the kidneys and pelvic organs. Intimate anastomoses exist between the renal and ovarian nerves, and probably the kidney in its movement compresses the veins of the spermatic plexus and also the renal vein or the vena-cava.

The Tampon in Menorrhagia.

Lusk (*American Journal of the Medical Sciences*, January, 1893) asks: "Is the tampon a childish expedient in recurrent profuse hemorrhages at the menstrual epoch?" While freely admitting that in the great majority of cases of menorrhagia there is a diseased condition present, as endometritis with fungoid granulation, neoplasms, displacements, etc., which can be recognized and removed by different therapeutic or surgical procedures, the author is also satisfied that cases of menstrual hemorrhage occur in which careful examination fails to discover disease, or repeated efforts of treatment fail to relieve the periodical bleeding. Lusk has had patients with this disorder to whom he has administered internally ergot, hydrastin, tannin, cannabis indica and viburnum, and made applications to the endometrium and also curetted without removing any fungous vegetations, but all of no avail. In such cases oöphorectomy is often advised, but the author is inclined to the belief that this operation and consequent mutilation may be avoided in certain cases by the seemingly elementary and palliative practice of tamponing the vagina. The most successful method in his hands of applying the tampon is upon the lines followed by the late Marion Sims, as follows: Wads of cotton of suitable size are dipped in carbolized water and pressed into the form of flattened disks. These are introduced through a cylindrical speculum and packed into the vaults of the vagina, with the flattened surface of the cotton in a transverse position, rather than in one parallel to the vagina. The packing should cease at the urethro-vaginal septum. This treatment may be commenced upon the first day of the menstrual period, and the tampons should be replaced at the end of twenty-four hours. It is rarely necessary to make more than two or three applications. The speedy cessation of menstruation, or the entire suppression of it by the introduction of tampons at the beginning of the flow, have not seemed to have the least injurious or unpleasant effect. The prompt control of excessive periodical

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bleedings gives anemic patients an opportunity to gain strength and improved blood and nerve tone, until in time the general health is restored. The muscular structure of the uterus is also improved in tonicity, and the tampons may be discontinued. The article is closed with the history of an aggravated case of menorrhagia, in which faithful and persistent treatment, both medical and surgical, had proved unavailing, and in which a prompt and complete control over the hemorrhage was gained by the tampon, and the patient restored to health and happiness from a state of emaciation and depression.

PATHOLOGY

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Relation of Pseudo-Diphtheritic Angina to Diphtheria, with Special Reference to Scarlatinal Pseudo-Membranous Angina.

William D. Booker (*Bulletin of the Johns Hopkins Hospital*, October and November, 1892, Vol. III, No. 4) reports the careful study of a number of cases of the above affections. We quote *verbatim* the interesting conclusions at which he arrives.

Pseudo-membranous affections of the throat occur secondarily to scarlatina, measles and, perhaps, other infectious diseases which often give the clinical features of diphtheria, but which differ from the disease in nature and etiology.

The clinical features are not sufficiently distinctive in all cases to differentiate these affections from diphtheria.

The anatomical changes in the body resulting from the effects of the bacillus diphtheriæ have been carefully studied by different investigators, and appear to be characteristic. A like careful study has been made of the anatomical changes resulting from pseudo-diphtheritic processes, but so far as this study has been made it may be safe to consider the anatomical changes as entirely distinct from those of diphtheria.

The anatomical changes, save the pseudo-membrane, resulting from the effects of the bacillus diphtheriæ, are not occasioned by the direct action of the bacilli which do not invade the body, but by a toxic substance produced by the bacilli. These changes are characterized by focal necrosis of tissues, with peculiar splitting of the neuclei of the cells.

The anatomical changes resulting from scarlatinal diphtheria are accompanied with an invasion of the body by streptococci, and are largely suppurative processes which appear to be the direct effect of these organisms. Necrosis of the tissues also occur in this disease, but a comparative study has not been made with the necrosis resulting from diphtheria.

The etiological factor furnishes the certain criterion for the separation of diphtheritic from pseudo-diphtheritic processes, but even with this advantage a differential diagnosis may be difficult in individual cases.

Both measles and scarlatina render the tissues especially vulnerable to the

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diphtheritic bacillus, and complications of diphtheria with these diseases are not uncommon.

The constant occurrence of streptococci in pseudo-diphtheritic processes, and in numbers proportionate to the degree of tissue changes, indicates a causal relation between the cocci to these processes.

This view is strengthened by the observations of Soerensen, that cocci form the advance guard of the anatomical changes; that in quite fresh cases of scarlatinal diphtheria they have also penetrated deep in the mucous membrane; that they are scattered in the surroundings of the lymphatic gland abscesses; that they form the advance guard of the infiltration in extensive phlegmon, and in cases where infarction of the spleen and peritonitis occur together they are found coating the spleen.

The streptococci found in pseudo-diphtheritic angina have not been identified as one species or differentiated from other known species of streptococci, but it appears that different varieties of streptococci may occur in different cases of pseudo-diphtheritic angina, and there is also some ground for the belief that certain varieties of streptococci are associated with the serious cases of pseudo-diphtheritic angina.

This view of the causal relation of streptococci to the scarlatinal pseudo-membranous angina has nothing to do with the specific etiology of scarlatina, of which we are at present entirely ignorant.

Action of Dead Tubercle Bacilli.

W. Vissman (*Virchow's Archives*, Vol. CXXIX, first half) found in following experimentally the statement of Koch, that *dead* tubercle bacilli are able to bring about changes in the animal organism, that when sterile, *i. e.*, dead, tubercle bacilli are introduced into the subcutaneous cellular tissue abscesses resulted. After injection in the vein of the ear irritative changes were noted in the connective tissue of the inner organs, as the lungs, kidney and liver. The changes were less marked in the kidney and liver than in the lungs. The spleen was not affected.

In the lungs and liver the nodules which occurred did not allow of differentiation from true tubercles during the first week—large and small round cells, epithelioid cells, giant cells and tubercle bacilli being present. Later, the nodes did not caseate like true tubercles but a fibrillar network developed in the centre, the cellular elements disappeared gradually, and soon the tubercle bacilli also disappeared.

The experimenter concludes with Virchow that tubercular new formations occur from connective tissues, that the bacilli act as foreign bodies which by their irritation cause a growth of connective tissue elements. If the bacilli are alive and virulent the young cells are killed by the poisonous products of the bacillus, die and undergo the cheesy degeneration.

Cancer Parasites.

P. Foà (*Centralb. für Bacterial u. Parasitenk*, Vol. II, No. 6) found enclosed in the cells of carcinoma granular bodies, which showed best in sections stained with hematoxylin, and were of varied size and configuration. They can easily be mistaken for leucocytes. He is of the opinion that they are not accidental entities, but are of distinct causal relation to carcinoma.

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Cholera Bacilli in Salted Caviar.

C. Fraenkel (*Veroffentlichungen des Kaiserl. Gesundheitsamtes*, 1892, No. 42) was led to study this subject because the fishes from whom the caviar is made are caught in the waters of the Elb and other rivers known to be infected with cholera. The caviar, when salted, was found to contain numerous micro-organisms, especially a yeast, yet when cholera bacilli were introduced they died with considerable rapidity. A considerable diminution occurs in their numbers in a few hours, and they are nearly all destroyed in twenty-four hours. In forty-eight hours all are certainly dead. The concentration of the salt is thought to be responsible for the death of the bacilli.

Bacilli in the Blood in Measles.

P. Canon and W. Pielicke (*Berliner Klinische Wochenschrift*, 1892, No. 16) found a special form of bacillus in the blood of fourteen cases of measles by the following preparation: Dry cover-glass films are immersed for five to ten minutes in absolute alcohol, and then stained in an eosin-methylene solution in an incubator for several hours.

The bacilli are of varying size, some of the radius of a red blood corpuscle or more, others smaller. Sometimes the color is homogeneous, sometimes unequally distributed through the bacillus.

The writers consider them the true cause of measles. Sometimes they occur in considerable numbers, sometimes they are few. They are found throughout the entire course of the disease, and, indeed, sometimes three days after cessation of the fever. They do not stain by Gram's method. In the nasal secretion and in the expectoration the same kind of bacilli are found.

Culture experiments were mostly unsuccessful; although the bacilli seemed to grow in bouillon, they could not be transplanted into other media so as to produce successful growths.

The Pathology of Pernicious Anemia.

J. P. Crozer Griffith and Charles W. Burr, in the *Medical News*, October 17, 1891, corroborate the view that there is in pernicious anemia a deposit of iron in the liver unlike that observed in any other disorder, and describe it as a form of hemolysis. After considering cases, seemingly pernicious anemia in symptomatology, but subsequently proving to be cases of atrophy of the gastric mucous membrane or helminthiasis affected with *bothriocephalus latus*, the writers conclude that pernicious anemia is a truly independent affection, which may be defined as an extreme and increasing anemia, without marked loss of flesh, not directly secondary to any anatomical lesion or to the presence of any parasite, but probably due to the entrance into the portal circulation from the intestine of some certain hemolytic agent, the origin of which is unknown, but which is possibly of the nature of a ptomaine.

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MISCELLANEOUS.

NECROLOGY.

At Phillipsburg, January 7, Dr. Hobart Allport, in the forty-fifth year of his age. Dr. Allport was born in Morris Township, Clearfield County, March 3, 1848. He was graduated at the University of Pennsylvania in March, 1878, after which he returned to Phillipsburg, where he soon established an extensive practice, and became engaged in several charitable enterprises. His uprightness, benevolence and untiring industry endeared him to a large circle of friends, who will deeply mourn his loss.

CORRESPONDENCE.

GUM LANCING.

The editor of the *Dental Cosmos*, in the January number of that journal, discusses Dr. Forchheimer's article on "Gum Lancing" in the December issue of the University Medical Magazine. He states that Forchheimer shows in his various articles on the subject that he, Forchheimer, has never performed gum lancing except on one occasion, and that evidently Dr. Forchheimer does not understand the "difference between the therapeutic usefulness and applicability of scarification for the purpose of blood-letting, and of free division of the gum to relieve backward pressure upon the formative pulp-organ. He evidently does not know that in many instances the profoundest disturbances of the general nervous system of infants, directly traceable to dental irritation, occur in cases where the tissues of the gum show none of the classical signs of inflammation, and that these are promptly and fully relieved by completely dividing the gum over the tooth or teeth next in order of eruption. His view is shared with Dr. Patterson, from whose article in *The International* we have quoted, and who says that pathological dentition 'is signaled by the common evidences of inflammation—viz., redness, swelling, etc.' Those who have carefully observed these cases know that many of the most serious cases of nervous irritation are not so *signaled* by local inflammation."

I do not think it worth while farther to discuss this matter. It seems to me that Dr. Forchheimer has condemned the practice on theoretic grounds so fully as to interfere with his practically investigating it. I leave the subject with the statement that I have frequently

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seen the proper use of the gum lancet at once relieve symptoms which had resisted appropriate treatment, and that thirty years of experience have enabled me to distinguish between *propter hoc* and *post hoc*, so far as the stock of brains with which I started life will permit. My conclusions are, moreover, in accord with those of hosts of practitioners of medicine.

H. C. WOOD, M.D.

BOOK NOTICES.

DISEASES OF CHILDREN: A Manual for Students and Practitioners. By C. ALEXANDER RHODES, M.D., Instructor in Diseases of Children, New York Post-Graduate Medical College. Philadelphia: Lea Brothers & Co., 1892.

This is one of a series of compends upon the essential medical subjects, edited by Dr. Bern B. Gallaudet, of New York. It is arranged in the form of questions and answers, and embraces the general anatomical and physiological considerations of the child at birth, the development of the child, the methods of examination of children and the directions for their care and feeding, as well as a careful consideration of those diseases to which children are liable. In its preparation the author has compared the opinions of many of the authorities upon children's diseases, and those upon general medicine. The compend contains 159 pages, and is published in very attractive form.

Compends are of such frequent publication that a distinct place must be given them in medical literature. Where allowed to take the place of text-books in their respective branches their use is censurable. For such use they are tempting to the college student. Used, however, to supplement the careful reading of standard books upon its subject the compend becomes a valuable aid in arranging the gleaned ideas and in fixing them more firmly in the mind. It is useful also to the busy practitioner, giving him diagnosis and treatment in a very condensed form. This book is a careful *resumé* of the subject, and commends itself to the student and practitioner for such use.

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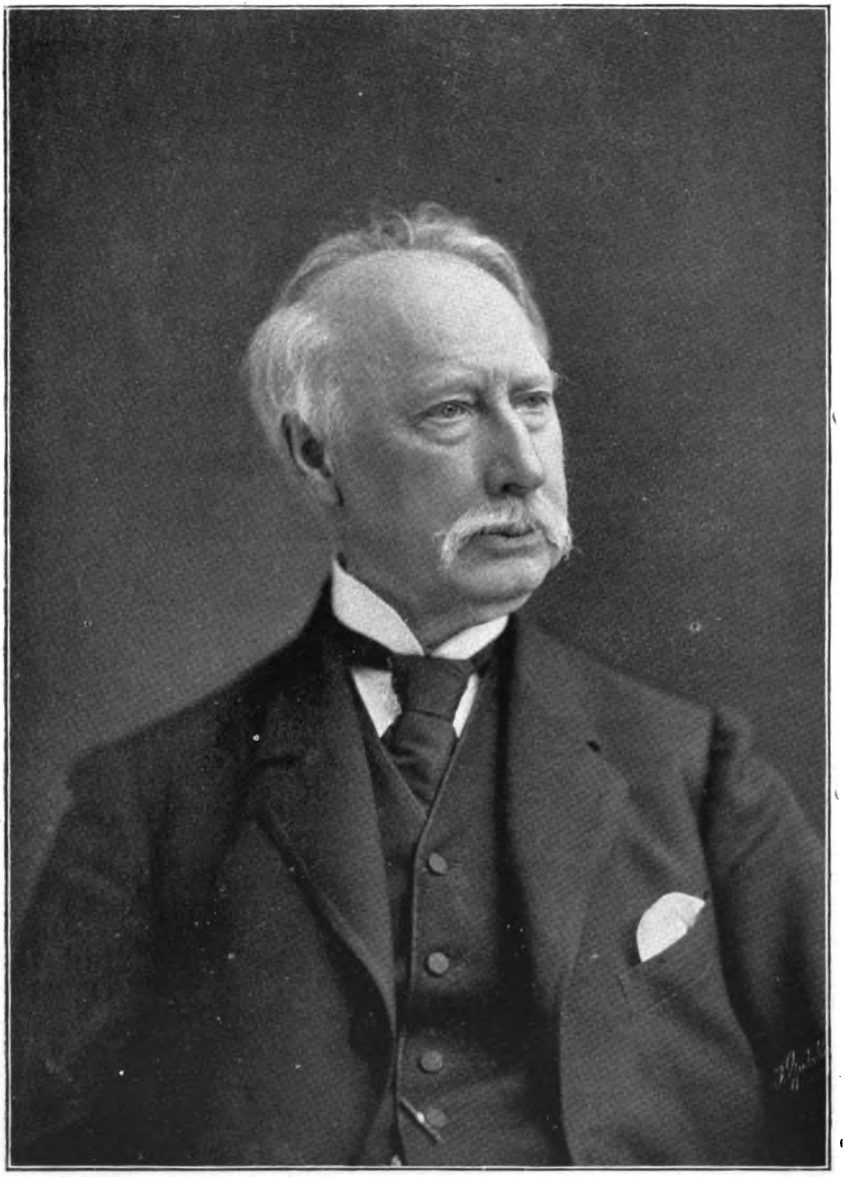

D. HAYES AGNEW, M.D., LL.D.

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SUPPLEMENT.

MEMOIR OF D. HAYES AGNEW, M.D., LL.D.

[Prepared at the request of and read before the College of Physicians, Philadelphia, January 4, 1893, by J. William White, M.D., Professor of Clinical Surgery in the University of Pennsylvania.]

In discharging the task which has been assigned to me by the President of the college, and which I regard as at once a duty and an honor, I do not propose to detain you with an account of the early life and work of Dr. Agnew, nor with many biographical dates or details. The excellent custom of embodying such information in the memoirs of distinguished Fellows may well be disregarded in this instance, as a biography of Dr. Agnew just published gives the main incidents of his long and useful career. I shall, accordingly, content myself with the briefest possible statement of the facts which seem essential in attempting to arrive at a just estimate of his position and rank in the profession of this country and among the surgeons of the world, and with a few reminiscences, in which I beg you to excuse occasional mention of my own views or experiences, for the reason that everything relating to him is of interest to hundreds, and is, therefore, worth recording.

He, himself, said not very long ago, in a sketch of his dear friend, Dr. Beadle, that "to preserve, in some tangible or permanent form, a record of the life-work of those who, after having achieved distinction in some one or more of the various spheres of human pursuits, have gone to swell the ranks of the great silent majority is a custom no less commendable than beautiful."

Dr. Agnew was born in Lancaster County, November 24, 1818, of a family which, it is said, can be traced through many generations of North of Ireland and Scotch ancestry to Norman progenitors. In this country, for nearly two centuries, it has been prominent in the history of Pennsylvania, and especially in that of the county of his birth. He was educated at Moscow College, in Chester County, spent some time (1833–34), at Jefferson College, in Canonsburg, Pa., and a year (1834–35), at Delaware College, Newark, Del. He graduated in the medical department of the University of Pennsylvania in 1838, before he was twenty-one years of age. The first few years of his professional life were spent in practice in the vicinity of Nobleville and Pleasant Garden, Chester County. During this time he married (1841), and, being invited to enter the business which had been left by his wife's father, he joined his brothers-in-law in the formation (1843) of

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the firm of Irwin & Agnew, iron founders. Fortunately this venture was unsuccessful. The firm failed in three years (1846), from causes associated with a general depression of the iron industry, which occurred at that time, and from the absence in the locality of their works of sufficient facilities for the transportation of ore and fuel. Dr. Agnew returned to the practice of medicine, and for two years (1846–48), practiced in Chester and Lancaster Counties. He was not content, however, with the future which opened up before him. His natural bent was toward the study and teaching of anatomy and surgery. In the country opportunities for dissection were obtained with the greatest difficulty, and there were not only no classes to whom to impart information, but no colleagues or co-workers with whom to discuss it. For these reasons, and probably because he had a consciousness, even though vague and unformulated, of the capacity for good work which lay within him, he came to Philadelphia, in 1848, with the purpose of making it his permanent home, and of prosecuting his studies in his favorite subjects.

I have always regarded this step of Dr. Agnew's with unmixed admiration. He was then thirty years of age. He had had seven years of country practice and three years of business experience. His life thus far had been a hard and laborious one; his disappointments must have been bitter and, as regards his extra-professional essay, almost overwhelming. He had not only failed to accumulate any capital, but he had business debts which, to his sensitive and upright nature, seemed obligations which he was bound in honor to repay.

He left the region in which he had been born and reared, the friends of his family and of his early manhood, the patients who had learned to trust and depend upon him, and came to a city in which the profession was overcrowded, the competition for place and practice keen and unceasing, and the aspirants for both the honors and the rewards of medicine many and able. The move is, perhaps, the earliest traceable indication in his public life of the self-reliance and clear-sightedness which came to be recognized as among his most marked characteristics.

After some deliberation he established himself in a large old-fashioned house at 16 N. Eleventh Street, where I first saw him when, as a boy of ten, I took a note to him from my father, asking him to see a surgical case in a member of our family. This was in 1860. For twelve years he had been laying the foundations of his future success. In 1852 he had begun his teaching of practical anatomy and operative surgery at the Philadelphia School of Anatomy, and his name is still the most distinguished in the long list of able men who have been connected with that institution. In 1854 he had been elected a surgeon

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to the Philadelphia Hospital, and had thus been given not only his first hospital wards, but also his first opportunity to perfect himself in the teaching of clinical surgery. He always regarded this step as one of the most important in his professional life, and once in speaking of it to me, said he had already, at that time, decided that he "might as well attempt to be a gardener without a garden as a surgeon without a hospital." He had also, for two years, been occasionally substituting for Dr. Henry H. Smith, professor of surgery at the University, in giving clinical instruction to the students. At the time of which I speak (1860) his reputation as an able operator and a sound consultant was firmly established and rapidly spreading, but his practice was not yet, as he has told me, what would now be called a lucrative one. He was, however, only forty-two years of age, in the enjoyment of the fullest mental and physical vigor, and undoubtedly saw success within his grasp. I remember well the kindly manner in which he received me, and the promptness with which he left the fire, before which he had been reading, changed his slippers for shoes, and prepared to answer the call which I had brought, although it was late on a disagreeable evening. He had then, as always, an impressive personality and a magnetism felt by most persons who came within the sphere of his influence. It was not of the sort that is exploited in the journals as characterizing brilliant politicians and successful criminal lawyers, nor yet of the variety, which history teaches us, has been possessed by many great statesmen and victorious generals. If I attempted to epitomize or explain the secret of Dr. Agnew's attractiveness to so many and such different classes of people, I would say that "kindliness" expressed it perhaps better than any other word. There were strength and energy and determination back of it, with a basis of broad knowledge and justifiable self-confidence; but, all the same, the chief impression he made was of a tender benevolence which always regarded the feelings and interests of others, and which pervaded his whole atmosphere. It was noticeable then even to a child, and it grew as he advanced in years, until the title of the "Dear Old Man," which was given him by the younger Gross, was universally accepted as in the highest degree applicable.

During the civil war Dr. Agnew had large opportunities—chiefly at the Hestonville General Hospital—for operative work, and it is needless to say profited by them to the utmost. In 1863 he was elected surgeon to Wills' Eye Hospital; in 1865, surgeon to the Pennsylvania Hospital; in 1867, surgeon to the Orthopedic Hospital; in 1870, professor of Clinical Surgery, and in 1871, professor of Surgery in the University of Pennsylvania, retaining the latter positions until 1889, when he resigned them to be created emeritus professor of Surgery, and honorary professor of Clinical Surgery.

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During all these years he grew steadily in professional strength, his clinics were crowded, his office was filled, his services were in daily demand in all parts of the Middle States, and the University of Pennsylvania was sending out, year after year, hundreds of young men who regarded him, and justly, as the best possible adviser in all cases of surgical disease or injury.

His election in 1889 to the Presidency of the College of Physicians was a distinction which, like all the others, came to him unsought and unsolicited but which he nevertheless highly appreciated. It resulted from the very wide-spread feeling in the college that he should not be permitted to end his days without adding his name to the list of those gentlemen who, without exception, have for years reciprocally honored and been honored by this organization, perhaps the most conservative in America.

My personal remembrances of him begin again in the winter of 1868 when, twice a week, after supper, I used to hurry back to the University to get a front seat at his half-past seven o'clock lectures on surgical anatomy. He was then probably the most popular teacher at the University, and deservedly so. I certainly have never heard lectures on anatomy which, for clearness of description, actual teaching force and living interest, could compare with those which he then gave. On those two nights the room was crowded with the students of both classes and, as he always spent the latter part of the evening in the dissecting-room, every subject was surrounded by its full quota of diligent workers who, if I may judge others by myself, found the chief attraction in the chance of getting a pleasant word of advice or instruction from him.

He looked then very much as he did for the next twenty years of his life. His hair was already thinning and beginning to turn white, as was the moustache, which was prolonged on the cheeks in a military fashion. His height, of more than six feet, and his fine muscular development made his figure commanding in spite of the slight professional stoop which he always had, the result of hours spent over sick-beds and operating tables. His blue eyes were keen but kind in their expression. An old blue dress-coat with brass buttons, which he wore to these lectures, gave him, I remember, to my imagination, a military air, and this fancy came back to me in one of his last attacks of illness, when I found him sitting up in bed with a handkerchief tied around his forehead on account of a severe supra-orbital neuralgia. He looked like a wounded grenadier. I told him of my boyish idea about the blue coat, which he recalled, and said smilingly he would hardly venture to wear it before a medical class of the present day, in spite of their alleged improvement in manners. He has twice in my presence

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alluded to himself, half laughingly, half seriously, as "homely." Homely he was in the sense in which Chaucer and most English people at the present day employ the word, that is, he was domestic in habits and simple and affable in manners; but homely in our perverted American signification, which usually implies not only plainness of feature but positive ugliness, he never was. A cold-blooded critical analysis of his features might disclose some reason for such an opinion, but no one who knew him looked at Dr. Agnew in that spirit. Goodness and kindness of character shine so clearly through some faces that defects or irregularities are forgotten, and his was one of them.

The College of Physicians and the University are fortunate in possessing masterly portraits of him, which will help to bring before future generations of Fellows and of students his striking personality. We of the present day need no such reminders. We carry his likeness in our hearts.

In reviewing his life one is struck with the fact that both hereditary and personal influences were such as favored the growth and development of that side of his character upon which, as fate willed it, the greatest demand was to be made in years to come. The strain of Scotch blood brought with it dogged perseverance, enduring patience, disregard of luxury, even of personal comfort, ability to sustain uncomplainingly the reverses of fortune, and to submit contentedly to the long-continued economies which they necessitated. But it must be added that these virtues, so often associated with a sombre or stern disposition, were in his case tempered by geniality, cheerfulness and an unvarying and all-embracing tolerance that was one of his chief characteristics.

The wholesome out-door life which he led in the country for so long a time was the best sort of "physical culture," and doubtless those years, which he sometimes thought had been in a sense wasted, came back to him in the form of increased energy, endurance and good health later in life. His very misfortunes supplied an additional stimulus to a character which naturally was so domestic and affectionate that ambition alone might not have brought about its transplantation from the familiar soil in which it had been reared and nourished.

It is a trite observation that our apparent trials often prove to be our greatest blessings. There can be little doubt that Dr. Agnew contained within him the qualities which would have commanded success, even under the unfavorable conditions associated with material prosperity, but neither is it doubtful that the years spent while waiting for practice, when he went to the dissecting-room after his morning office hours, went back after his midday dinner, spent most of the afternoon there and returned after an early supper to leave only when the last

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student had gone and the lights were extinguished, were the years during which he laid broad and deep the foundations of his success. They were years, also, the reward of which was not postponed to a future period. Dr. Agnew has often told me that on the whole he regarded the days spent in the rooms on Chant Street, the "Windmill Street" of Philadelphia, as the happiest days of his life, and he once at least made the same statement in public.

When we come to estimate the true value, and the real and enduring position of one of our profession who has left us, we can, perhaps, adopt no better gauge than the opinion of his pupils. History shows us that almost invariably the surgical contemporaries of a great surgeon, with whatever affection they may have cherished him, were still, in a sense, his rivals; they learned, or failed to learn, at the same time, or by the same stern experiences; they often differed and, being human, when they chanced to be right derived an increased pleasure from the fact that he was wrong; their estimate, in other words, was often unconsciously tinctured by personal prejudice, or influenced by motives not apparent to themselves. Who would to-day be content to accept Cline's opinion of Sir Astley Cooper, or Ferguson's of Syme, or Syme's of Liston, or Pott's of John Hunter?

Dr. Agnew, more than any man of equal eminence in our profession with whose history I am familiar, was free from this sort of belittling animosity toward others and, perhaps as a consequence, rarely if ever excited it. But when one dies at seventy-four, after more than a half-century of professional work, few of his own years are left to testify, and still fewer are apt to place on record their final and deliberate judgment.

The laity, however sincere their admiration and however well-founded it may sometimes prove, are essentially unfit to pronounce upon the claims of medical men to either present or posthumous honors. They are too apt to mistake show for brilliancy, self-assertion for force of character and notoriety for fame. In Dr. Agnew's case they held him at his just value, but their verdict can never be regarded as final or conclusive.

It is, after all, in the case of great surgeons at any rate, upon the testimony of their pupils that their ultimate place in the history of our profession depends. Nearly every surgeon who has made his name immortal has been a teacher, and usually as great a teacher as he was a surgeon. For one exception like John Hunter, a hundred illustrious names could be adduced to emphasize the truth of this statement. Their lives have been written, their merits described, their achievements recorded, their virtues extolled by those whom they have taught and guided, and Dr. Agnew constitutes no exception.

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From the length and breadth of this land the pupils whom for ten years (1852–1862) he instructed in the Philadelphia School of Anatomy, and those who during the next thirty years had the paths of surgical science made easy for them in the University of Pennsylvania by his wise, clear, practical teachings have over and over again testified to their respect for him living and their reverence for him dead. Their estimate, their decision, will be those accepted by future generations, and upon them Dr. Agnew's fame will rest justly and securely.

This professional reputation, thus testified to, will be found to depend chiefly upon the following factors: (1) The clearness of his teachings; (2) the soundness of his judgment; (3) the precision of his operations; (4) the character of his writings.

Of course, some of his success was due to the personal qualities which have already been mentioned. A man who cannot enter a household or a sick-room without diffusing about him the almost indescribable sense of repose and confidence that he inspired, the feeling on the part of the anxious or grief-stricken relatives that however the case is going everything humanly possible is being done for the patient, and on that of the medical attendant that exhaustive consideration has been given to every detail of the treatment, such a man, I say, is certain of increasing practice as soon as he has made a beginning, and has become known to the public and the profession. Something of this quality is occasionally inherent in men whose natural knowledge and capacity do not justify it. The public is then deceived for a time, but the profession rarely or never. To the degree in which it was possessed by Dr. Agnew, it may safely be said it is never found except in association with wide experience, broad professional culture in the best sense of the word, and pre-eminent ability. In its effect upon the acquiring of practice it is perhaps more important than any of the factors above mentioned, but the reputation which it brings is evanescent, and when years have elapsed it will be found, as I have said, that the surgeon will be known to posterity, if known at all, as a teacher or writer, a consultant or operator, not simply as a successful practitioner.

(1) As a teacher he was remarkable for his simple, plain, straightforward methods, his entire disregard of oratorical effort, his faculty of making clear and easily comprehensible even the abstruse and complicated portions of his subject. He never spent time or labor upon mere eloquence, but was always so earnest and so obviously desirous of conveying information as to hold the attention of his class, and so concise and practical as to leave his teachings indelibly impressed upon their memories. His views were so evidently the outcome of mature experience, and so stamped with the seal of honest conviction, that his

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enunciation of them gained added impressiveness and made his course upon surgery not only one of the most useful, but also one of the most pleasant, of their University experiences, to thousands of undergraduates. Without apparent effort, and with a skill born of thorough knowledge and perfect mastery of his theme, each subject was presented to the student so clearly, simply and directly, that it remained a part of his medical knowledge. His lectures were very uniform in quality, but I recall with especial admiration those upon hernia, upon fractures, and upon the ligation of arteries. To my mind they were models of what surgical teaching should be. I have heard the same opinion expressed many times by alumni who preceded and by those who followed me at the University, and neither my reading nor my experience leads me to believe that those lectures would suffer by comparison with the teachings of the greatest masters of our art in this or any previous epoch.

His habit at his clinic was to precede his operation by a brief statement of the history of the case, and by some remarks upon diagnosis and prognosis, and upon his reasons for choosing the particular operative method he was about to employ. During the operation itself he said but little. Afterward he would usually leave some of the final details, the arrest of hemorrhage, insertion of sutures, application of dressings, etc., to his assistant, while he explained more fully what he had just done, and described what he had observed.[1]

He possessed to a remarkable degree the power of interweaving with his admirable descriptions of surgical diseases and injuries the underlying anatomical facts upon which accurate diagnosis and successful treatment so commonly depend. Indeed, as a practical surgical anatomist he was in this country without a peer, and much of his success arose from his well-earned reputation in this department.

He was a natural teacher, always ready and pleased to impart information even outside of his lectures to any one seeking it in the proper spirit, and did so in the clearest and most agreeable manner possible, making the dullest subject seem interesting, and investing it with a more extended significance by some illustrative or cognate fact.

He never, however, forgot the interests of his patients in his desire to convey instruction. I held the staff for him for some time and in a great many lithotomies before I had much experience in cutting for stone myself. He knew this, but as he did not believe in a multiplicity of fingers in wounds, or in removing the finger in these cases until the

[1] The cut on the opposite page is from a photograph taken by a member of the class. The case was one of malignant growth of the foot, necessitating amputation of the leg. The period was that during which we employed the carbolic spray at all operations, but before the use of operating gowns had come into vogue here. Dr. Agnew had finished his preliminary remarks and was about to begin the operation.

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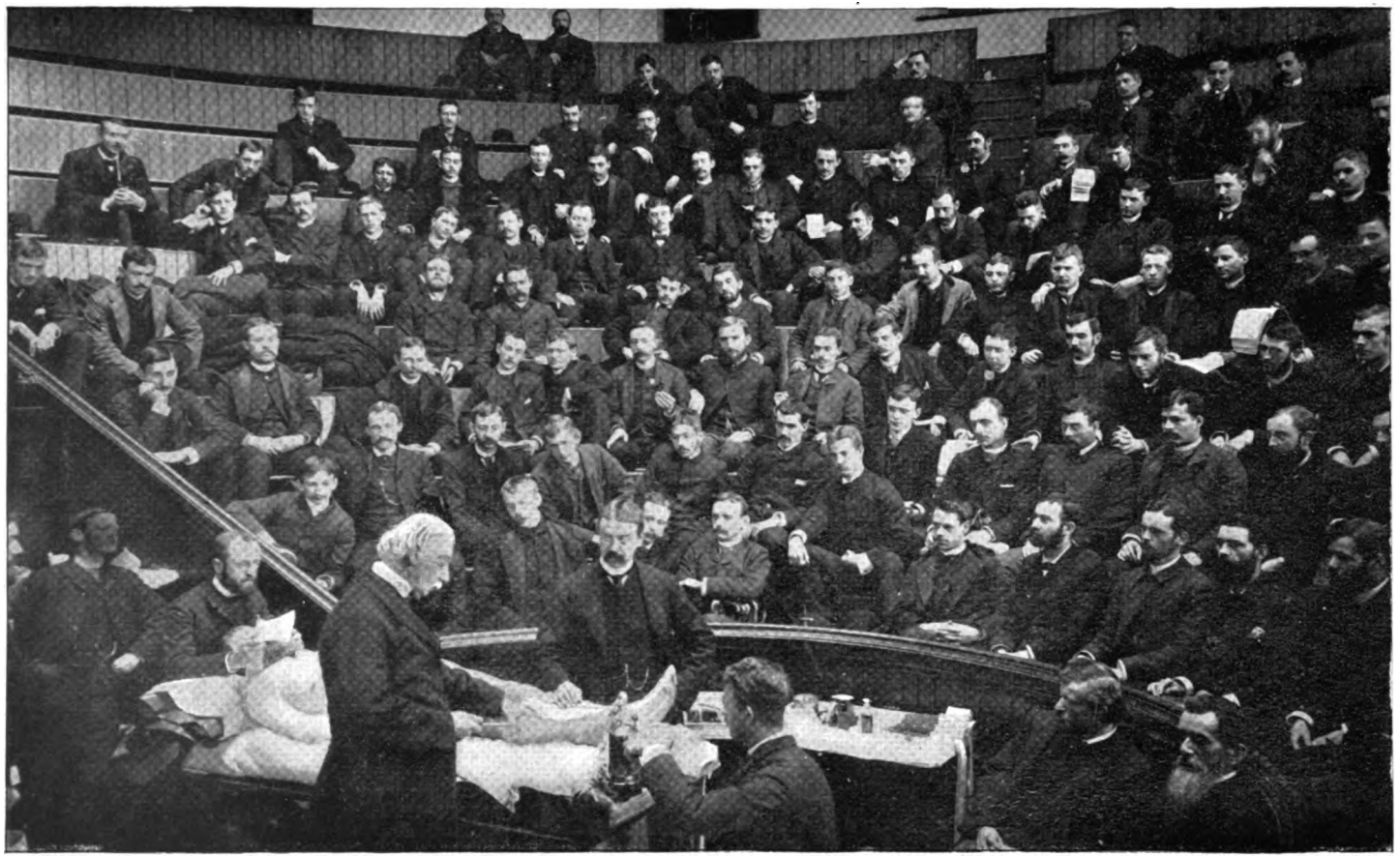

DR. AGNEW'S CLINIC, UNIVERSITY HOSPITAL, 1886

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forceps were in the bladder, he never but once asked me to explore that organ prior to the removal of the calculus. On that occasion we were operating in a little town in the southern part of Delaware. After making the usual incision and putting his finger in the bladder, he spent a long time in exploring the bas fond and the post-prostatic pouch in search of the stone which we had both heard and touched with the staff. Presently he asked me to slip my finger in as he withdrew his, as the condition was so extraordinary that he would like me to feel it. The stone was swinging like a pendulum from the summit of the bladder, held there by a band of organized lymph quite firm and resistant.

The case was unique in his experience.

(2) As a consultant and as a practitioner perhaps his most noteworthy quality was the soundness of his judgment. Partly from his natural clearness of mental vision and good common sense, partly from his thorough preparatory training and his diligent and incessant study of everything that bore upon the teaching and practice of all departments of surgery, and partly, no doubt, from the enormous experience which in later years he could utilize for his guidance, he made singularly few mistakes in either the diagnosis or the treatment of surgical conditions.

It is given to none of us to be infallible; error and humanity are now, as always, inseparable; perfect wisdom and complete knowledge in even the narrowest of human occupations are unattainable. I desire to make no exaggerated claim for the subject of this memoir, but I feel sure that at least to this audience, which numbers so many who looked upon him as the court of last appeal in all surgical matters, I may venture to state my belief that few surgeons have ever lived who, in the presence of an obscure case, were so uniformly correct in their estimate of the precise diagnostic value of a surgical symptom, so accurate in their application of the general principles bearing upon the condition in question, and so conversant with all the varied possibilities which such cases present. His ability to unravel the tangled web of disease, to solve its intricate problems, seemed to me in the earlier days of my association with him to be little short of inspiration; later I came to recognize it as the legitimate outcome of keen observation, wide experience and logical reasoning.

I have often thought that of all the great surgeons with whose lives I was familiar I could trace the closest resemblance between both the personal and the professional characteristics of Sir Astley Cooper and those of Dr. Agnew. I once said this to him, and he replied that while there was no surgeon whom he would rather be thought to resemble, he feared that, like many other attempted parallels from the days of

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Plutarch until now, the facts would have to be made to conform to the theory.

And yet I may ask those of you who knew him best if the following description of the great English surgeon by his nephew might not have been written *verbatim et literatim* of Dr. Agnew:

"His influence did not arise from his published works, nor from his being a lecturer, nor, indeed, from any public situation which he held, although each of these circumstances had its share in producing the result; but it seemed to originate more from his innate love of his profession, his extreme zeal in all that concerned it, and his honest desire, as well as great power, to communicate his knowledge to another, without at the same time exposing the ignorance of his listener on the subject even to himself. This must be looked upon as one great cause why his public character became so much diffused by his professional brethren, for he owed little of his advancement in life to patronage. Another peculiar quality which proved always a great source of advantage to him was his thorough confidence in respect to his professional knowledge, so that after he had once examined a case he cared but little who was to give a farther surgical opinion upon it. This must inevitably have instilled an equal degree of confidence in those consulting him."

To the younger men, and especially to the younger operators in the profession, he was more than a consultant. How many reputations he has helped to make by the encouragement and guidance which he never refused; how many more he has saved from wreck by the protection and support which his unassailable position permitted him to give to those whose ignorance, rashness or ill-luck got them into surgical difficulties, no one but himself ever knew. In suits for malpractice he was the bulwark and safeguard of dozens of unfortunate medical defendants. He always saw clearly just what could be truthfully said in explanation or extenuation of a bad result; and although in his evidence in such cases he was never known to depart from the strictest veracity, he would probably have himself pleaded guilty to *suppressio veri* in more than one instance. What was said of Sir William Fergusson was true of him:

"Full of experience himself, and able to wield his powers so brilliantly, he was tender as to the failure of others, and nothing gave him more pleasure than to have an opportunity of helping some one out of difficulty, while the manner in which he gave this help was as graceful as the assistance itself was valuable."

One source of Dr. Agnew's power as a diagnostician was his very retentive memory for even the details of cases which he had once seen. No clinical observation, even of times long past, escaped him, and as

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for many years he was the chief consultant of three States, with a population of millions, his experience, almost without exception, furnished a parallel to the rarest and most obscure conditions. I have more than once begun to describe to him some recent experience or observation of my own, which seemed to me unique, only to have him interrupt me kindly and smilingly and finish the description as accurately as if he had been present and had seen the case himself. Often, too, to my great profit, he would volunteer some words of explanation that instantly made clear all that was previously doubtful.

His own powers of observation were so well trained that in many surgical conditions a glance sufficed for a diagnosis, and although usually cautious about expressing an opinion he would sometimes venture upon a positive one the moment he saw the case. This was notably so in patients with complete scrotal hernias or with large hydroceles, the distinction between which he made by the relation of the tumor to the anterior plane of the body; in cases of shoulder injury, where the position of the patient revealed the presence or absence of luxation; in deep abscesses, where a glance at the overlying skin and a touch with his opposing fingers completed his examination; in fracture near joints and in un-united fracture, where he almost seemed to have a special sense for determining preternatural mobility, and in many other classes of cases.

The story which Vidal de Cassis tells of Dupuytren, that within a few days of his death he was asked his opinion of a lesion of the elbow in a patient who was brought to his bedside, and without touching him diagnosed a luxation, which had been denied by an eminent colleague, but was subsequently demonstrated and reduced, might well have been told of Agnew.

(3) In speaking of his operative work I have purposely used the word precision to characterize it, instead of the usual eulogistic term—brilliancy. Dr. Agnew himself disliked the latter word, and with it the kind of operating which it often described, in which everything is sacrificed for the sake of what in athletics would be called a "record." He has more than once told me interesting anecdotes of the difficulties into which this habit of what he called "slap-dash" work had led some of his contemporaries. He agreed with my friend Mr. Treves, himself an exceptionally able operator, who says that the days of the so-called "brilliant" surgeon are over, and that it is no longer a matter of primary importance that a stone should be extracted or a vessel tied or a limb removed in a limited number of seconds.

Dr. Agnew was naturally a quick operator, and his training dated back to the days when pre-anesthetic traditions kept alive the theory that rapid surgery was good surgery, but he was above everything else

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a safe operator, a precise operator. His knowledge of anatomy included not only that of the dissecting room, which, important as it is, is but the beginning for the surgeon, but that of the operating table, which is often very different. He knew not only what the relations of parts and structures ought to be, but what they were in any particular case. He knew, in other words, not only the ordinary topographical anatomy of books, of the cadaver, and of the lecture room, which is knowledge common to many, but also the anatomy of the individual upon whom he was operating, and of the disease which necessitated his interference. He has often said to me that no two cases of hernia were precisely alike in their anatomical appearances; that each dissection of the neck for the removal of a new growth had a certain individuality which enabled him to remember it for years; and that one might cut through the loin twenty times to approach the colon or kidney and find no two of the cases precisely identical in thickness of muscular layers, amount of peri-renal fat, etc.

It was in this knowledge of the conditions and appearances to be expected in a given case, the knowledge of these infinite variations, that he was far superior to any operator with whom I have had a chance to compare him. With the splendid foundation of practical anatomy which his years of teaching and demonstration had given him, his constant operating had developed in him this faculty of quick and certain recognition of the structures exposed to view or to touch, which gave his work the character of accuracy and precision that impressed every one who saw it.

His use of all instruments was light but firm, devoid of flourishes or attempts at show, but strikingly graceful. His hand was very steady up to the last month of his life. His ability to work with either hand, although he did not himself consider it of much practical value, was certainly a great convenience, and was a peculiar and striking feature in his operating. He acquired it as a consequence of a severe onychia of the right index finger, which destroyed the matrix and which deprived him for a long time of the use of that hand, during which period he taught himself the use of the other.[1]

The general level of his operative work was so high that it is difficult to select any particular cases or groups of cases for special mention, but possibly his peculiar abilities were made most manifest during the removal of a deep-seated growth of the neck or of a mammary tumor, the ligation of a large bloodvessel, the extraction of a vesical calculus, or the excision of a bone like the superior maxilla, or a joint like the knee or elbow.

[1] His hands had so much individuality, so much of what artists call "character," that I have added to this memoir an illustration made from a plaster cast taken after his death by the sculptor, Mr. Murray.

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DR. AGNEW'S HAND, FROM A PLASTER CAST.

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One of his most marked characteristics was his imperturbability described by his former colleague, Dr. Osler, with eloquent reference to its applicability to Agnew as: "Coolness and presence of mind under all circumstances, calmness amid the storm, clearness of judgment in moments of grave peril; a quality which in its full development has the nature of a divine gift, a blessing to the possessor, a comfort to all who come in contact with him." This quality Dr. Agnew had to such a degree that nothing that could happen during a operation, however unexpected or undesirable, seemed greatly to disturb him. Terrific and unlooked-for hemorrhage, profound shock, alarming collapse, threatened asphyxia, all possible surgical accidents and emergencies, were embraced within his experience, and I have seen him meet each of them in the same prompt, quiet, masterful manner which assured and gave confidence to every one who was working with him. Even death on the operating table has come to him without disturbing his equanimity. He had it occur once during tracheotomy in a desperate case, but it was many years ago.

The only other time I know of, and the only time I ever saw Dr. Agnew lose a patient on the table, was during an operation for hemorrhoids in 1887 at the Bingham House in this city. The patient, who was apparently well and strong, had taken less than four ounces of ether and was breathing well when the first ligature was tightened. His respiration immediately stopped, and although his heart continued to beat for nearly half an hour he died without making even an attempt at respiration. The autopsy showed an apoplexy into the floor of the fourth ventricle. That half hour was one of the longest in my life. The physical exertions employed in the efforts at resuscitation were in themselves exhausting, and in addition there was the mental distress incident to such a sudden and unexpected termination of a minor case. At the end I was drenched with perspiration, unnerved from excitement and disappointment, and felt ten years older. Dr. Agnew was as cool and placid as if the occurrence was a common one in his experience. As we walked down to our carriages on Eleventh Street he made a remark which I have never forgotten; he said: "I had hoped to escape the accident of an ether death, but it occurs once in a certain number of thousands of cases in the best hands, and I've no doubt I passed my limit long ago. We were not to blame." Then after he got in his carriage he leaned out to say: "If you are asked about this just say it was my case. I'll accept all the responsibility."

Philosophical and unchanged in the presence of calamity, tender and thoughtful of the interests of others, he was then, as always, one man in ten thousand.

Dr. Agnew was imperturbable not merely as an operator, but in all

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the ordinary relations of life. No surgeon ever lived and attained eminence who was more careful to throw around his patients every safeguard, or who strove more earnestly after successful results; and yet no surgeon accepted untoward results with greater equanimity when it became apparent that they were inevitable, or when the case had ended. His mental attitude under these circumstances seemed to be that of a consistent fatalist, and I have many times envied him the unruffled placidity with which he finally learned of the unfavorable termination which he had, perhaps, contested hour by hour for long and anxious days. He used to explain it by saying that he felt that he had done his best and could do no more, but he probably had the consolation denied to most of us of knowing that *his* best was *the* best, although he was too modest so to express it.

His patience as an operator was equally remarkable. I do not remember, as his assistant, or indeed in any other capacity, ever to have received a harsh or unkind word from him for faults of either omission or commission, although I must often have deserved it. The one thing that used to elicit from him an expression of impatience was the breaking of an important stitch during a staphylorrhaphy or an operation for vesico-vaginal fistula. He would then come as near to swearing as his principles permitted. One of the first private operations I ever saw him perform was for the relief of such a fistula in the wife of a clergyman. The most troublesome stitch broke while he was tightening it, eliciting an ejaculation which led Dr. Elwood Wilson, who was present, to say, "Agnew, I'll tell Beadle on you!" referring to the Reverend Dr. Beadle, one of the most admirable and lovable of characters and then, probably, Dr. Agnew's dearest friend. This raised a laugh in which Dr. Agnew joined, and the stitch was reinserted. The incident represents the full extent to which he ever permitted himself to show temper, and I must confess that it was a source of gratification to me whenever a similar occurrence took place, as it momentarily diminished my sense of inferiority.

(4) His collected writings embrace a number of miscellaneous articles—important contributions to the surgery of lacerated perineum and vesico-vaginal fistula; papers on general surgical diagnosis, etc.—but the work of his life as a writer is his great "Treatise on the Principles and Practice of Surgery," the three successive volumes of which bear the dates 1878, 1881, 1883.

It is safe to say that this magnificent monument to the learning, skill and industry of one man will remain unrivaled in surgical literature. It is not likely that there will ever again be any one who will combine the enormous experience, embracing every department of surgery, the clear judicial intellect, and the patient, untiring energy

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which enabled him in hours stolen from his family, from social pleasures and from much-needed rest, to produce this remarkable exposition of his work and views.

It was, as has been said, his child, the dearly-beloved offspring of his brain, and while I regret that in the swift march of surgical science it must, if left without revision, inevitably fall into disuse, I can understand the sentiment which desires to keep it unaltered and unchanged as the most eloquent of all records of his splendid achievements.

And yet there are portions, and large portions, of the book which it seems to me can never grow surgically old or useless. Our successors may be too hurried to read the abstracts of the history of important surgical procedures, which, with infinite labor and painstaking he had conscientiously compiled; his pathology may become antiquated, and his therapeutic measures come to be looked upon as are those of Paré or Wiseman, but his admirable clinical descriptions, his comprehensive and well-balanced consideration of diagnostic points, his clear explanation of the surgical anatomy of disease, injury and operation, must always remain as at present, a mine of information for the busy practitioner.

After many years of what may be called intimate acquaintance with the book I venture to assert, and I doubt not many of you will corroborate me, that in the directions I have indicated one may turn to it for help and guidance with more certainty of finding what he seeks than to any other single treatise on surgery in his library. This statement was made in some of the early reviews of the work, and I was once present when a surgeon of distinction from a neighboring city expressed the same opinion to Dr. Agnew. I remember well the simple, unaffected pleasure which it evidently gave him, and he afterward told me that he hoped it was true, as he regarded it as a higher compliment than any other that could be paid to a medical work.

The book went to a second edition in 1889, and is well deserving of many future editions. It is the property of the trustees of the University of Pennsylvania.

He was not a conspicuously original surgeon. He invented a number of instruments and splints, notably that for use in transverse fracture of the patella; introduced some new operations, such as that for webbed fingers; modified others, as the musculo-cutaneous flap method in amputation, and lateral lithotomy in children, and made many minor improvements in both surgical apparatus and operative technique. His claim to imperishable fame does not, however, rest upon any of his inventions, nor upon any one great addition to surgical science. It is not given to every one to be a discoverer. Dr. Agnew had not a mind of the inventive, speculative, restless type which contributes the newest but not always the most useful ideas to our profession. Neither did

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his training nor his circumstances fit him for the plodding laboratory work, experimental and microscopic, as a result of which a Pasteur or a Lister or a Koch electrifies the world with some grand contribution to its knowledge. Dr. Agnew had a judicial mind, wonderfully fitted to weigh and decide upon the suggestions that came to it, and he had extraordinary mechanical and physical ability to carry into effect in an operative way whatever appealed to his deliberate judgment. As was said of Abraham Colles, "He possessed the art of touching briefly on the salient point of his cases, and was gifted with what Dove called 'the incomprehensible talent' of separating the essential from the immaterial in complicated phenomena."

He was eminently and above all others of his time—I am almost tempted to say of *all* times—a sound surgeon, a safe surgeon. One might be sure invariably that his opinion in a given case, even if it were not finally proven to be the right one, was well founded, and would stand creditably the test of adverse criticism; and in every case and under all circumstances it was equally certain that the opinion was given with the single idea of being of use to the physician or patient who had consulted him.

In special departments of surgery he has probably been excelled by not a few, but taking the whole round, including not only general and operative surgery but gynecology, ophthalmology, genito urinary surgery, syphilography, orthopedics, etc., he attained a degree of eminence which has rarely, if ever, been equaled, and to which our own times and generation furnish no parallel.

I have never seen or known of an instance in which he seemed in the least degree influenced by the temptations which constantly beset those of us who as teachers need clinical material, as operators desire to attempt new or hitherto untried procedures, as practitioners feel the universal need of money and of prestige. Since the death of Dr. Charles Hunter, his previous assistant, which was a great loss to the profession, to the University and to Dr. Agnew himself, I was intimately associated with him in both his public and private work, and for the last few years he did me the honor of referring to me those patients who required operation. I may, therefore, claim to have had every possible opportunity of observing and criticizing the standard of his conduct in this respect, and I cannot conceive of a loftier or more unswerving devotion to the highest and best principles than that which he always displayed. Certainly no one ever brought to any occupation a more profound sense of its grandeur and nobility, a higher estimate of its relations to mankind, or a more steadfast purpose to consecrate his whole life to it than did Dr. Agnew to the study and practice of surgery.

For a long time he had a medical practice which was among

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the largest in Philadelphia. He retained it at first because he believed that while it was possible to be a good physician with no surgical experience whatever, he did not think that the converse was true, but always held that a surgeon was better and stronger in his own department if he had had to watch and study and care for the medical conditions which are liable at any time before, or after operation, to complicate his purely surgical cases. Later, he had not the unusual experience of finding it next to impossible to refuse to see such cases in families who had for years been accustomed to depend upon him.

His therapeutics, both in medicine and surgery, were very simple, and I have found, and still find, among the prescriptions brought to me by his patients, astonishingly little variety. Bransby Cooper remarks of his distinguished uncle: "So simple were Mr. Cooper's prescriptions that he had five or six formulæ which, under ordinary circumstances, constituted his complete pharmacopia, and such medicines he kept constantly made up, for the benefit of the poor."

Sir Joseph Lister once told me that during his very earliest days in Edinburgh, when he was still uncertain whether to remain there or to begin his work elsewhere, he consulted Mr. Syme. The latter told him that he would probably do well to stay there, but remarked that it really seemed as though there were not much left to do in the way of advancing surgical science, little thinking at the time that the young man he was talking to, his future son-in-law, would almost alone and unaided effect the greatest revolution in surgery, and bring about the greatest step in advance which has been made since Harvey discovered the circulation of the blood.

Dr. Agnew never, to my knowledge, wavered in his profound and unvarying faith in the future of surgery. He would have had far more reason than Mr. Syme for believing that the limit of possible advance had been reached, as he had seen the introduction not only of anesthesia, but of antisepsis. It was contrary, however, to his buoyant and hopeful disposition, and inconsistent with his own progressive spirit, to take this view of the science which had shown such infinite capacity for development. He believed, for example, that just as surgical tuberculosis is slowly but surely coming under the control of the surgeon, so carcinoma, the present opprobrium of surgery, would in time yield to methods of treatment yet to be discovered. He was always among the first to test new surgical procedures and to adopt them if they seemed to him consistent with fundamental principles and common sense. At a time when many of his juniors were skeptical as to the merits of antisepsis, or were even openly antagonistic, he gave it a thorough trial and at once discarded in its favor the methods which he had

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employed for forty years. He was among the first to advocate the extension of the field of operative interference in fractures of the skull, one of the innumerable advances which antisepsis made possible. He performed nephrectomy and laryngectomy, supra-pubic lithotomy and prostatectomy, nerve grafting and other operations which were popularized only after he had reached an age when, upon many minds, a new idea has the effect of a foreign body upon the grosser tissues, and is either encapsulated and disappears or sets up irritation and is extruded. While Sir Henry Thompson was impeding the acceptance of litholapaxy by the profession in Great Britain, Dr. Agnew, although one of the most accomplished and successful of lithotomists, was employing it in the majority of his cases of calculus. He attacked brain tumors, tried the modern methods for the radical cure of hernia (though he had previously devised, employed and cast aside as useless a method of his own), removed the appendix both during attacks of inflammation and in the interval, employed the most recent technique in the treatment of ununited fracture, and in every direction kept fully abreast of the times up to the very week of his death.

On the other hand he could not be induced to attempt operations which his judgment did not approve, and his last important paper, a judicial review of the results obtained by local surgeons in various forms of cerebral disease and injury, was written partly with a view of establishing the uselessness of certain procedures which he believed to be unphilosophical and unjustifiable. He thought the evidence showed that he was correct, but if future experience had demonstrated the contrary to be true it is safe to say that he would have been one of the first to admit it. I have already alluded to his behavior in reference to his own operation for the cure of hernia. A still more striking illustration, however, of his fair-mindedness is to be found in his attitude toward a question of public policy which, on account of the apparent conflict between hygiene and morals involved has always excited the bitterest contention. I allude to the so-called "Contagious Diseases Acts," the recognition and regulation of prostitution by the State. Everything in Dr. Agnew's religious training and association, and many elements of his personal character, tended to lead him into the ranks of the opposition, where are to be found in every country where the subject has been discussed the large majority of the clergy and a small minority of our profession. In 1882, however, when he was 64 years of age, he wrote: "At one time I was disposed to take sides with the opponents of prostitution laws; but on a more comprehensive and careful study of the subject, and especially of the results which have been reached in those countries where such legal regulations are in operation, I am forced to believe that the evil is one which comes legitimately within the province of civil law."

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To my mind this statement is one of the most interesting examples of the many which might be adduced in evidence of Dr. Agnew's broad-mindedness and absolute independence of thought and judgment.

It is obvious that Dr. Agnew's physical endurance must have been extraordinary to enable him to carry on at one time the teaching, writing, operating and consulting, any one of which would have been a heavy burden for an average man. He told me not more than five years ago that he did not know what it was to be tired. One of the best illustrations of both his strength and his devotion to duty is afforded by an experience which he has more than once mentioned to me. He was called by telegram early one morning to an out-of-the-way place in the northern part of the State. He ate a hurried breakfast, caught his train, and by dint of close railway connections and a final drive of eight miles over a rough road reached the house of his patient late in the afternoon. An operation was required, and he performed it at once, a meal being prepared for him in the meanwhile. On looking at his watch and consulting a time-table he found, however, that by starting immediately he could make a connection at Harrisburg which would enable him to reach Philadelphia in time for his office hours and his lecture the next morning. He accordingly left at once and, as he told me, reached home in time for breakfast the next day, without having had anything whatever for twenty-four hours except a drink of ice water on the cars.

Until a few years before his death he usually went up stairs at the hospital at a gait which tried the legs and the wind of the assistants. When operating in private houses heavy persons often had to be lifted from the bed to operating table and back again. Dr. Agnew used to say laughingly that there was no one we could not manage between us, and he continued to do his share, and more than his share, of such work until I positively refused to permit it. Physical labor never unsteadied his hand or affected his operating in the slightest degree, and he was disposed to speak rather disparagingly, so far as his kindly nature permitted, of those who were thus affected. Among other minor peculiarities of fellow-surgeons which he did not admire was the disposition to invent and employ a multiplicity of instruments. He made some additions to the surgical armamentarium, as I have already mentioned, but he never laid special stress upon them, and he habitually employed the fewest and simplest instruments possible.

As an example of his extraordinary endurance, and also of his physical courage, I may mention the fact that during a cholera epidemic in Philadelphia he has, on a broiling summer night gone over to the pit in which the unclaimed bodies were placed, and has himself injected as

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many as fifteen at one time, an amount of labor and a degree of risk to which few men would be willing to subject themselves. His experiences in procuring dissecting material were many and peculiar. He did not hesitate in the case of unknown vagrants or paupers, where no feelings could be lacerated or shock inflicted upon surviving relatives, to step slightly beyond the strict letter of the law in the interests of science, and even has gone out to the Potter's Field at midnight, resurrected a body, placed it in a sack in the seat of his buggy alongside of him, and driven it in to his Chant Street dissecting room.

He had a keen sense of humor, which never failed to respond to a good story or a jocular remark, and was always thoroughly appreciative of innocent fun of any sort. He could on occasion be very amusing, a quaint vein of harmless sarcasm running through his accounts of his numerous experiences. I have heard him more than once tell of an incident that occurred while he was living at 1611 Chestnut Street. A man, residing in Williamsport, had half swallowed his artificial denture, which became impacted in the esophagus. He was sent down to Dr. Agnew, who met him at the Colonnade Hotel and extracted the plate. An enterprising reporter who heard of it rang Dr. Agnew's bell at one o'clock the following morning. Mrs. Agnew, who often interposed between her husband and unnecessary demands upon his time and strength, spoke to the visitor from the window. He said that he had learned that there was a man in town with a set of teeth in his throat, and he wanted to get the particulars. She reported this to Dr. Agnew, and asked what she should say. He said: "Tell him that if he doesn't go away from here promptly there will be another man in town in a few minutes with a set of teeth in his throat."

In his persistent cheerfulness he resembled most of the great surgeons of whose histories we have any accurate record. Larrey enlivened even the retreat from Moscow with his pleasantries; Astley Cooper was the life of his medical club; Abernethy was famous for his dry witticisms, and many other lesser lights were notably humorous.

Much of his success was undoubtedly due to his sympathetic temperament, his native eloquence when discussing any subject on which he felt deeply, and his remarkable self denial in the pursuit of that science to which his life had been so thoroughly and completely devoted. There are not many instances, apart from those of religious fanaticism, of such utter abandonment of ordinary aims and ambitions, and of such intense concentration of all mental and physical energies upon one idea, as characterized Dr. Agnew during the years when the struggle was hardest and the reward seemed doubtful or distant. While slow to go beyond his self-appointed sphere of thought and action, he was prompt

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to resent interference from those whose knowledge and research he knew to be superficial and limited; and any suspicion of imposition or falsehood was sufficient to excite in him the most profound contempt. Thoroughly honest in all his convictions, making no effort to appear what he was not, and never influenced by any but the most upright and conscientious motives, he despised all hypocrisy in others, and above all in those who prostituted our profession to what he considered their own personal aggrandizement. He was not, however, quixotic in his ideas, and his native shrewdness and common sense enabled him to appreciate fully the merits of those men who, like himself, gained both professional and pecuniary success, and combined properly and deservedly scientific with material progress.

He never asked and rarely obtained in individual cases the fees to which his rank in the profession entitled him, although the aggregate of his earnings, on account of his enormous capacity for work, was very large. His small charges arose partly from the habit formed during his earlier days of practice, partly from a dislike for the drudgery of bookkeeping which resulted, as in the case of the late Dr. Meigs, in many visits being unrecorded and forgotten, but chiefly from his conscientious desire that no sick or ailing person who wanted or needed his opinion should be prevented by lack of means from consulting him. During the later years of his life it became absolutely necessary to limit his practice by raising his fees somewhat, but he was always too modest and had too little of the money-making instinct to place a proper valuation upon his services. I am tempted again to call attention to the parallelism between his habits in this respect and those of Sir Astley Cooper. The language employed by the biographer of the latter might be applied without the change of a word to Dr. Agnew: "There were two or three classes of persons from whom, if he knew their occupation, he always, throughout life, made it a rule not to take a fee, even when offered to him. When this desire not to receive any remuneration for his advice arose out of a belief that the pecuniary resources of his patient were very limited, he had the most happy manner of expressing it to the patient, without wounding his pride, or otherwise offending his feelings."

Both by character and training Dr. Agnew was law-abiding and scrupulously, even rigidly, correct in all the details of his life, but on the other hand, for those who, less fortunate in temperament or education or surroundings, succumbed to temptations which to him were so ineffective as to be practically non-existent, his sympathy and compassion were never-failing. No one was farther than he from the Puritanical morality which, negatively virtuous and technically Christian, finds the chief solace for its own discomforts in the contemplation of

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the failings of others, and its greatest pleasure in sour and sarcastic condemnation of their errors.

Not that he could not be tenacious to the last degree of his own opinions when he considered that a principle was involved. He never varied in his belief that the theatres, against which he once wrote a vigorous philippic, were on the whole both a cause and a symptom of moral deterioration in the community, an index of retrogressive civilization. He never approved of the co-education of the sexes, nor of the medical education of women under any circumstances, believing that any possible advantages to them were far more than counterbalanced by what he thought would be the inevitable loss of dignity and delicacy resulting from the association of the sexes under such conditions and from the character of their studies. In accord with the one opinion he denied himself during his whole life the pleasure which he would undoubtedly have derived from seeing the masterpieces of the drama, many of which he was fond of quoting, enacted on the stage. In accord with the other, he resigned a valuable hospital position, and, in spite of strong pressure, refused many lucrative consultations.

He was never an advocate of what is now called the higher education of women in any direction. He admired the domestic virtues, and at one of the last dinners he ever gave, remarked that a woman should be taught housekeeping, hygiene and belles-lettres. After that, he said, the more she knew the worse off she was.

He valued highly the opinions of those whom he considered his peers in the surgical world, but, as a rule, entirely disregarded all criticism of himself, or of his doings, whether favorable or the reverse.

In 1882, after the conclusion of Guiteau's trial, Dr. Hays, editor of the *Medical News*, asked Dr. Agnew to prepare a statement of the Garfield case, which should serve as an answer to the unfavorable criticism of its conduct made by Dr. William Hammond and a few notoriety seekers among the laity. Dr. Agnew at first consented, but on reflection decided that it would not be dignified or proper for him personally to notice such attacks, and asked me to write the paper and state that it met with his approval. This I did, and this was the only notice he took of the bitter public accusations which involved him equally with the other consultants and the medical attendants. A statement he had made to me, which I had previously published, and a letter he had written to Dr. William Hunt, were evidence that he knew from the beginning the surgical impossibility of locating or extracting the missile, and recognized at the same time the probable hopelessness of the case. But his cool judgment and calm superiority to popular clamor and professional pressure prevented those facts from being made public at a time when their promulgation would have

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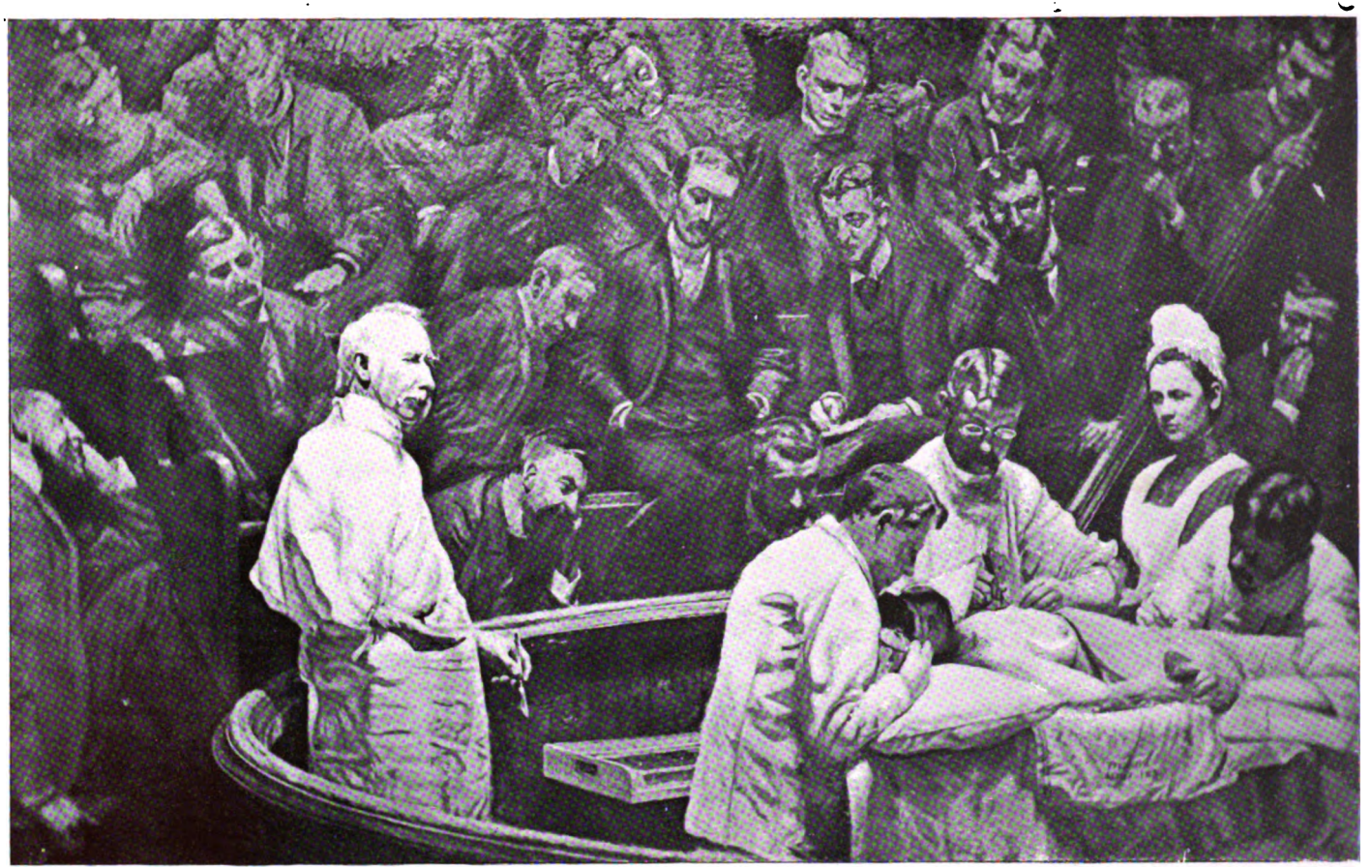

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DR. AGNEW'S CLINIC, UNIVERSITY HOSPITAL, 1888

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wrought serious harm to great national interests. His high sense of honor in all his relations as a consultant was never better illustrated than in the same case. I cannot even now go into details with propriety, but I may venture to say that had he divorced his interests from those of some of the gentlemen who saw the case earlier, he could easily have avoided all responsibility for those portions of the treatment most open to hostile criticism. This, however, he would not permit, preferring to stand by his professional brethren even under fire, and in a case which he know would be historical.

His refusal to make a charge for the many days and nights which he had spent with the President during nearly three months, involving a loss of weeks from his practice, then probably the largest and most lucrative ever acquired by an American surgeon, and the niggardly behavior of Congress in appropriating a sum which gave him only $5000, a sum less than he should have received, or could properly have charged for one tenth the service rendered, are also matters of history.

After his retirement from the chair of surgery he gave each year, at my urgent solicitation, backed by that of the class, a clinic at the University Hospital. It was always known in advance, and the amphitheatre was packed from floor to ceiling. At the first sight of his stately figure and silvered head the applause began, as vociferous and deafening as only a medical class can make it, and continued until by a quiet motion of the hand he indicated his desire for silence. He never lost his hold on the love and respect of the students, and until the day of his death was the most popular member of the University Faculty.[1]

In 1888 the beginning of degenerative changes was manifested by a violent attack of renal colic. He sent for me one morning about four or five o'clock. I found him sitting in a chair in his bed-room, leaning over the back, bathed in a cold perspiration, with a feeble pulse and in an agony of pain. On inquiry, I learned that this had been his condition for some hours, and on asking him why he had not sent for me sooner found that he had not wanted to disturb me, as he knew I had been out late to see a patient for him the evening before. I felt ashamed when I thought how promptly I would have sent for him if I had had a tithe of the pain from which he was suffering.

His first serious breakdown was in 1889, when he was confined to his bed with influenza. I attended him in conjunction with Dr.

[1] The cut on the opposite page is from the celebrated oil painting by the distinguished Philadelphia artist, Mr. Thomas Eakens. Dr. Agnew is portrayed in his customary attitude at the completion of an operation (in this case the removal of a carcinomatous breast), explaining its details while the hemorrhage is being arrested. The faces of assistants, students and onlookers are portraits. The picture was painted in 1888, the last year of Dr. Agnew's active work as a teacher.

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William Pepper. He made a slow convalescence, interrupted and prolonged by supra-orbital neuralgia and lumbar myalgia.

In 1890 he fell on the marble floor of his hall and violently struck the back of his head. I was never certain whether this was from a sudden vertigo or not, and have thought that it might account for the development of diabetes, which took place later in that year, when he was again invalided under the care of Dr. James Tyson and myself for a period of some weeks; but the autopsy disclosed no cerebral condition which could have been associated with traumatism.

Soon after he began to develop distinct anginose symptoms.

Last Spring, before entering the clinic room for his usual lecture, he told me that he felt excessively nervous, and after the lecture he said that the excitement had given him a great deal of precordial pain. He spoke once more in public, at the University dinner at Musical Fund Hall, and had the same experience. He said as we drove down there that he had determined to give up public speaking, and regretted that he had undertaken it on this occasion. If I may be forgiven for pushing a favorite idea a little farther, I should like to note that after describing Cooper's final address, his nephew says, "This was the last time he appeared as a public lecturer, for he found that the excitement of the scene and the exertion of delivery increased his tendency to the attacks to which he had lately been liable."

Those who were present at the dinner will remember Dr. Agnew's description of the members of the faculty under whom he had graduated in 1838. His words were well chosen, and his account of their peculiarities was most interesting; but it was only too evident that he was no longer fit for even the slight strain which this imposed upon him. As I went down stairs to see him into my carriage, which I had kept waiting for him, he looked so badly that I suggested that I had better go home with him, but with a touch of his old spirit he said: "No; I don't need a chaperon; I'm old enough to be trusted out alone at night."

With the exception of a week or two, when he was laid up with a mild recurrence of the influenza, he was at work all the spring, keeping his office hours and attending the almost daily operations which I had the honor of performing on his patients. His interest in surgery never flagged, and not long before his death, after watching for an hour or more a tedious and difficult dissection of the neck for the removal of a growth, he looked at his watch, saw that it was far past his dinner hour and said: "Well, I'd rather see that any day than eat dinner."

He never thought that he could be quite happy if he were altogether without occupation. In 1879, when he was sixty-one years of age, he expressed his views upon the question of the retirement of men

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of advanced years from active work when as chairman of a dinner given to Dr. S. D. Gross on the completion of his fifty-first year in the profession, he said: "It is, I fear, too commonly thought in these days of mad haste for preferment, place or power, that men when they have passed three-score and ten years should gracefully retire to the shades of private and inactive life, leaving the field to younger athletes. This is a great mistake. . . . There is something in the grace and dignity of age; its serene complacency of mind which, when coupled with an affluent wealth of knowledge and rich stores of observation and experience, renders the presence of old men in our midst pillars of strength not only in a profession like our own, but to the community at large; indeed, to the world."

On the 8th of March last year I removed a recurrent sarcoma of the abdominal wall from a lady, a patient of Dr. Agnew's and Dr. Murray Cheston's, who had been originally operated on by Dr. Agnew thirteen years previously. It is for me a memorable operation, as it proved to be the last one at which I was to have the honor and the comfort of Dr. Agnew's presence. The weather was cold and stormy. Before leaving the house he told me that if he felt no better the next day he would expect me to operate for him on an epithelioma of the lip in a patient of Dr. E. W. Watson's. Early the following morning I had a note, the last I ever received from him, saying that as he was quite well, and as the operation was so trifling, he would do it himself. I ventured to write him and advise against it, but ineffectually. Dr. Watson tells me that it was only with the greatest difficulty that Dr. Agnew succeeded in removing the little growth, as immediately after his arrival at the patient's house the anginose pains were so severe that he was unable to stand, and he required full doses of brandy and some minutes' rest before and during the operation, which was the last he ever performed. He saw another patient later in the day in consultation, and climbed two flights of stairs to do so. This brought on such a severe attack of cardiac pain that it was with difficulty he reached home. He was then utterly prostrated, and lay in the operating chair in his office for some hours. During this time Dr. DaCosta, who came over at once from his office, saw him, and tells me that he regarded his condition as extremely critical. I visited him an hour or two later in response to an urgent note from Mrs. Agnew, which I found awaiting me at my house late in the afternoon. He was then cheerful and free from pain, and gave me the above account of his day. With the help of Dr. Edward Martin and Dr. George de Schweinitz I carried him up to his bed, which he never left again.

I am sure I may say that in the days that followed he was well

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and tenderly cared for. In addition to the loving and watchful attention which his devoted wife and niece bestowed upon him incessantly, day and night, he was almost never without a physician in immediate attendance. Dr. Alfred Wood and Dr. Judson Daland divided the days with me; I spent each night in the house and saw him at short intervals; and the consultants, Drs. Da Costa and Pepper, were assiduous and untiring in their efforts to bring about his recovery. There were dozens of volunteers who would have considered it, as we did, a privilege to evince their love and respect by similar services.

During this last illness he showed the same sweet, uncomplaining, well-balanced disposition that had characterized him all his life. At first, even in the thick of the grave paroxysms of angina pectoris that gave him such distress, his professional judgment remained unimpaired, and the most valuable and practical suggestions received by the attending physicians and consultants came from the patient himself. Later, when diabetes re-developed and the brain began to become clouded, he dozed for most of the time, but he still retained his old interest in everything relating to surgery. When, after an absence of an hour or two, I would return to his bedside he would invariably ask as to what had occurred surgically, and the formula, "What's new?" on his lips meant, "What operation have you been doing? what cases have you been seeing?" An operation postponed on account of his illness was remembered and inquired about the day before he died. At about the same time in conversation with him mention was made of a mutual friend who had recently undergone a severe operation upon the face. Dr. Agnew was quiet for some minutes, and those about the bed spoke of other matters, but he opened his eyes suddenly and said, "Is the scar well placed?" I at first thought he was wandering, and made some remark about the effect of the morphia he had taken, but he speedily made clear that he wanted accurate information as to an important detail in the surgery of the case. "Did you take that breast out?" was the greeting on another occasion, when the mind was becoming feeble and when it was supposed that all outside interests had departed, but the question referred to a specific operation upon a relative of one of his colleagues.

The attacks of angina which at first were brought on by even a change of position in bed gradually diminished in frequency and severity, and for some days the outlook was promising, but later diabetes reappeared, he grew dull and drowsy, stupor deepened into coma and he died on March 22, surrounded by loving friends and relatives. The announcement of his death was followed by manifestations of grief so widespread and so striking as to make it assume the proportion of a public calamity, and no one who was present at his funeral and

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saw the stream of persons of all ages and conditions who filed past his coffin could have failed to be impressed by the hold which he had upon the respect and affection of this community.

It is to be noted that the cardiac conditions found at the autopsy were similar to those found in John Hunter and Sir Astley Cooper.

I have had the good fortune to number among my acquaintances, and I think I may say my friends, four whose names could not be omitted from the roll of the great men of this century. Two were devotees of pure science, Agassiz and Leidy; two were surgeons, Agnew and Lister. I have over and over again thought of the remarkable similarity in their personal characteristics, which was so striking that a description of one applies equally to all. Simple and unaffected in their manners, kind and courteous in their treatment of every one without regard to social conditions; slow to take and even slower to give offense; broad in all their views of life and its complex relations; modest to the point of diffidence where their own merits were concerned; ready to give freely and earnestly from their overflowing stores to the humblest seeker after knowledge; earnest and sincere without being quarrelsome; good with no shadow of self-righteousness, they seem to me to hold up to poor human nature examples that should stimulate and encourage even the worst or the weakest among us.

The words which my father, whose pride it was to count Leidy and Agnew among his personal friends, used in an obituary memoir of the former would describe them all: "Appreciation of his rare intellectual gifts was forgotten in admiration of his sincere, sweet-tempered, loving nature. Retiring and unassuming; genial and kindly in spirit and manner, the friend of all, the enemy of none; as approachable as a child, ready at all times and with evident pleasure to give the benefit of his knowledge to all who sought it, his death will be mourned wherever science is valued throughout the earth, but we especially will miss his kindly face, his ready hand, his cordial greeting, and his noble example of industry, integrity and manly character."

By the death of Dr. Agnew our profession suffered a loss of the greatest magnitude, and one which is perhaps altogether irreparable. There remain men equally eminent in some departments of surgery; men of equal ability as public expounders of surgical principles; men whose earnest and self sacrificing devotion to medicine in its broadest scope cannot for one moment be questioned; but there is probably not one who, combining in himself all these qualities, possesses in addition the skill in observation, the personal magnetism, the singleness of soul, the ceaseless, untiring energy which made Dr. Agnew not only one of the greatest surgeons but also one of the best citizens of this or any country. When I come to review finally his record in the many

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important relations of his life, and remember his unswerving advocacy of all that tended to raise the standard of teaching and of our profession; his resolute support of every progressive movement at the institutions with which he was connected; his unsurpassed ability as a clinical and didactic lecturer, and his conscientious discharge of the duties of those positions; his remarkable work as a practitioner, operator and consultant; his genuine love for that work, and his eager desire to acquire any new fact that might benefit his patients; his respect for every honest opinion, even if it differed from his own; his quick and ready sympathy and his tender treatment of all who claimed his help; his generous support of the feeble, the halting and the unfortunate in the profession; his gentle courtesy, kindly bearing and warm friendship which never failed in time of need, I can well believe not only that our profession has suffered an irreparable loss, but that there are many who, like myself, feel that they have sustained a personal bereavement which time may soften but cannot efface.

It is a consolation, gentlemen, to know that he lived to receive and appreciate the highest rewards that the profession has it in its power to offer. In the poem which our President read to him on the occasion of his jubilee in 1888, he recalled the imaginative promise of Minerva to the lad who a half century earlier had taken his degree in medicine:

> "But I will take you where the great have gone
> And I will set your feet in honor's ways;
> Friends I will give and length of crowded years,
> And crown your manhood with a Nation's praise."

When we mourn his departure from among us, and miss his strong hand and friendly face and wise counsel, it is at least some comfort to know that the honor and the friends and the praise came to him without stint, and that he died in the knowledge that he was the well-beloved, the "dear old man" of the profession.

1810 South Rittenhouse Square, Philadelphia.

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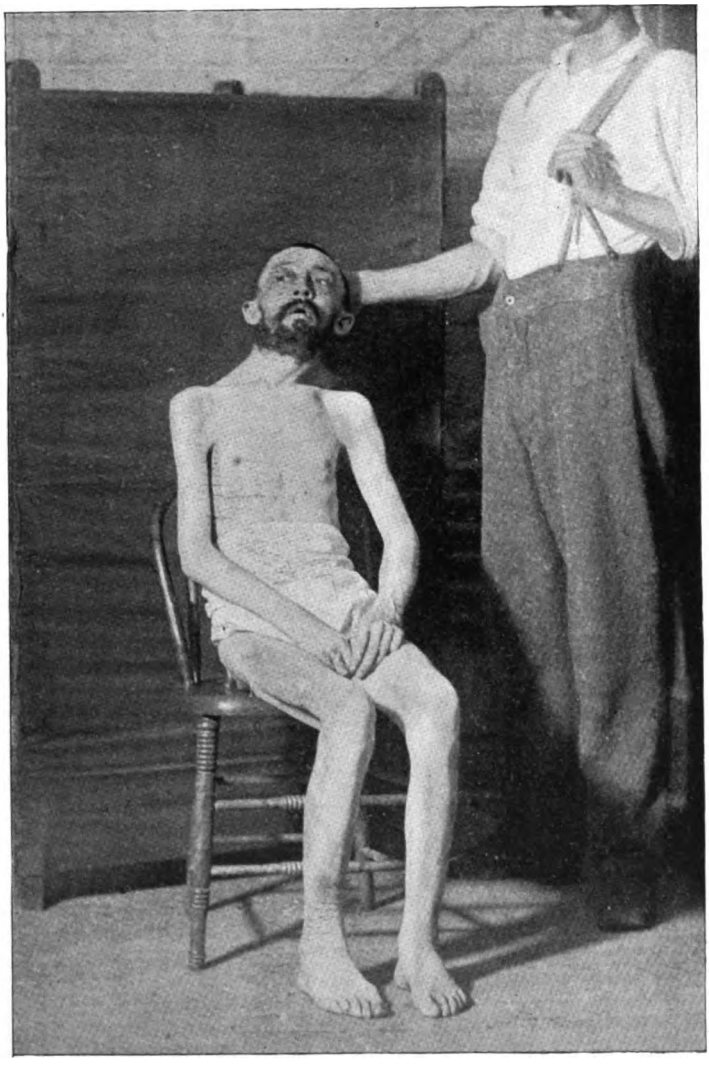
FIG. 1.



A CASE OF SYRINGOMYELIA.

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UNIVERSITY
MEDICAL MAGAZINE

MARCH, 1893.

REPORT OF A CASE OF SYRINGOMYELIA, WITH EXHIBITION OF SECTIONS OF THE SPINAL CORD.[1]

By JAMES HENDRIE LLOYD, A.M., M.D.

Physician to the Philadelphia Hospital, to the Methodist Episcopal Hospital, and to the Home for Crippled Children.

I AM indebted to the recent monograph of Dr. Bruhl,[2] of Paris, for a brief but clear historical statement of syringomyelia. Ollivier coined the word and applied it in 1837 to all canals or cavities in the cord, the presence of a canal being considered by him as always pathological. Stilling. however, showed that the central canal of the cord is normal and constant. Then the word hydro-myelia was used by Virchow and by Leyden to designate cavities in the cord, which they believed were always expansions of the normal central canal. Hallopeau, in 1869, taught that such cavities were secondary to a myelitis or sclerosis about the natural ependyma. But in spite of theory and imperfect observation, cavities in the spinal cord occasionally showed themselves entirely distinct from the central canal. Then Simon, in 1875, pointed out that cavities result from the softening and breaking down of a gliomatous tissue; that this tissue is a new, degenerative formation, which may exist even as a glioma, teleangiectasic in character; and he proposed to reserve the term "syringomyelia" for these cysts formed in gliomatous tissue and independent of the central canal. This distinction is now generally recognized, and syringomyelia is regarded as the product of a true gliomatosis.

Syringomyelia, having been thus recognized anatomically, has now entered fully into its clinical phase. A long series of memoirs, says Bruhl, seek to establish that it has its own proper symptomatology, and that the diagnosis can be made at the bedside. He adds that an autopsy in many cases has verified the exactness of the diagnosis.

These are precisely the conditions that existed in my own case, for the diagnosis was made upon the patient's admission to the hospital,

[1] Read before the College of Physicians of Philadelphia, February 1st, 1893.

[2] Contribution a l'Etude de la Syringomyélie par le Docteur L. Bruhl, Paris, 1892.

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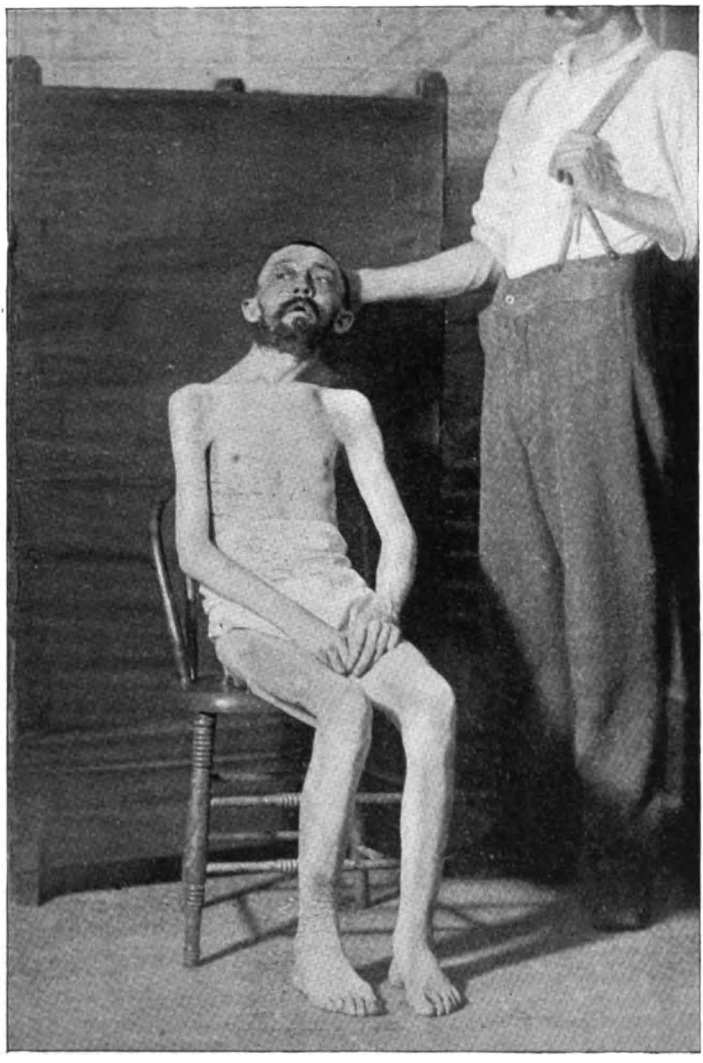
FIG. 1.



A CASE OF SYRINGOMYELIA.

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UNIVERSITY.
MEDICAL MAGAZINE

MARCH, 1893.

REPORT OF A CASE OF SYRINGOMYELIA, WITH EXHIBITION OF SECTIONS OF THE SPINAL CORD.[1]

By James Hendrie Lloyd, A.M., M.D.

Physician to the Philadelphia Hospital, to the Methodist Episcopal Hospital, and to the Home for Crippled Children.

I am indebted to the recent monograph of Dr. Bruhl,[2] of Paris, for a brief but clear historical statement of syringomyelia. Ollivier coined the word and applied it in 1837 to all canals or cavities in the cord, the presence of a canal being considered by him as always pathological. Stilling, however, showed that the central canal of the cord is normal and constant. Then the word hydro-myelia was used by Virchow and by Leyden to designate cavities in the cord, which they believed were always expansions of the normal central canal. Hallopeau, in 1869, taught that such cavities were secondary to a myelitis or sclerosis about the natural ependyma. But in spite of theory and imperfect observation, cavities in the spinal cord occasionally showed themselves entirely distinct from the central canal. Then Simon, in 1875, pointed out that cavities result from the softening and breaking down of a gliomatous tissue; that this tissue is a new, degenerative formation, which may exist even as a glioma, teleangiectasic in character; and he proposed to reserve the term "syringomyelia" for these cysts formed in gliomatous tissue and independent of the central canal. This distinction is now generally recognized, and syringomyelia is regarded as the product of a true gliomatosis.

Syringomyelia, having been thus recognized anatomically, has now entered fully into its clinical phase. A long series of memoirs, says Bruhl, seek to establish that it has its own proper symptomatology, and that the diagnosis can be made at the bedside. He adds that an autopsy in many cases has verified the exactness of the diagnosis.

These are precisely the conditions that existed in my own case, for the diagnosis was made upon the patient's admission to the hospital,

[1] Read before the College of Physicians of Philadelphia, February 1st, 1893.

[2] Contribution a l'Étude de la Syringomyélie, par le Docteur I. Bruhl, Paris, 1890.

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and the autopsy two months later revealed the extensive and interesting cavity in the cord, sections showing which I have the honor to present to you this evening.

I desire first to state briefly the main features of the symptomatology upon which the diagnosis of this affection rests. Following the admirable classification of Charcot,[1] we note two main groups: (1) The *intrinsic* symptoms, or those related to the limited lesion in the central gray substance of the cord. Here we distinguish (*a*) the symptoms of anterior poliomyelitis—progressive muscular atrophy of the type Aran-Duchenne; (*b*) the symptoms of posterior polio-myelitis—anæsthesia to pain and to heat and cold, with preservation of tactile sensibility and of the muscular sense (this is the well-known dissociation symptom); (*c*) symptoms of central poliomyelitis, a group whose origin is very problematical, including diverse trophic disorders other than those referable to the muscular system. (2) The *extrinsic* symptoms, or those which do not result directly from the gliomatosis in the gray matter, but are frequently associated with the others; they result from the extension of the lesion to the white substance of the cord, and are secondary. They include symptoms of lateral sclerosis, as spastic paresis or paralysis, and those of posterior sclerosis, or tabes. While this classification, like most others, is perhaps artificial in some respects, it is helpful to those who for the first time attempt to master the rather complicated symptom-groups of this affection. It strikes me as doubtful whether the symptoms of lateral sclerosis should be regarded as always secondary, and whether the muscular atrophy is always of the type Aran-Duchenne. In my own case the type, especially on one side, was spastic. It may also be questioned, as in fact Charcot does question, whether the trophic lesions are due to the involvement of the mid-region of the gray matter of the cord. It is evident that we must admit varieties or distinct types of the affection, as in fact the very nature of such a variable and destructive process suggests. In the main, however, the diagnosis rests upon the recognition of certain groupings of the above-named elements. The most common grouping is that of muscular atrophy, especially in the shoulders and arms, with the peculiar "dissociation" sensory symptoms, and with a variety of trophic disorders. My case is as follows:

E. B., white, male, aged 31 years, was admitted into the Philadelphia Hospital in July, 1892. His family history was negative. The patient had not used alcohol to excess, and denied syphilis. He said that he had always been strong until the winter of 1888, when after a severe storm he had a swelling of his right ankle, which he

[1] Bruhl, *op. cit.*

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regarded as rheumatic. He noticed soon afterward that he was obliged to step on his toes, and that his shoes became worn on the front parts of the soles. He was in the hospital for a few weeks in 1889. His condition on admission last July was as follows:

Motor Symptoms.—The patient had advanced progressive muscular atrophy of the spastic type (the so-called amyotrophic lateral sclerosis). The shoulder muscles, including the deltoid, infra- and supra- spinati and the lower part of the trapezius were much atrophied. The upper part of the trapezius (well called the *ultimum moriens*) was in good condition. The upper-arm muscles, *i.e.*, biceps, triceps and deeper muscles, were distinctly wasted. Most of these muscles presented a high degree of reflex irritability, and the biceps were spastic. The biceps-jerk was exaggerated, and a very lively reflex was produced by tapping vigorously the back of the wrist while the hand was dropped. The lower-arm muscles also were atrophied and weak. Some of these muscles presented fibrillary contractions. The legs were spastic and contractured. There was no true muscular atrophy or fibrillation in the legs. The knee-jerks were much exaggerated, and ankle clonus was present; but this spastic condition with exaggerated reflexes was distinctly more marked, both in the arm and leg, on the right side. The muscles did not present the reactions of degeneration. To faradism all the wasted muscles of the chest, shoulder, arms and forearms reacted normally. The same was true of the muscles of the legs. To galvanism the cathodal closure reaction remained greater than the anodal closure reaction in the wasted muscles of both arms. The anodal and cathodal opening reactions were not found. The formula remained normal in the leg muscles. In some wasted muscles of the arms there was a slight modal change. It was thus seen that the case presented the spastic type of progressive muscular atrophy, and the interesting fact was observed that this was much more marked on the right than on the left side.

Sensory Symptoms.—The patient presented a quite typical picture of the "dissociation-symptom" of syringomyelia. Thermo-anæsthesia, or inability to distinguish heat and cold, was seen, especially in the left arm both above and below the elbow, and in the whole of the left leg both anteriorly and posteriorly; also upon the back (Figs. 2 and 3). Analgesia, or loss of sensibility to pain, occupied almost the same areas excepting the back (Figs. 4 and 5). Small areas of anæsthesia on the neck, shoulders and front of the waist were also seen. (See Figures.) This anæsthesia is not common in the disease, and in this case occupied but a limited area. On the right thigh, instead of analgesia there was hyperæsthesia. This observation is perhaps of some significance in view of the fact that the sensory symptoms peculiar to

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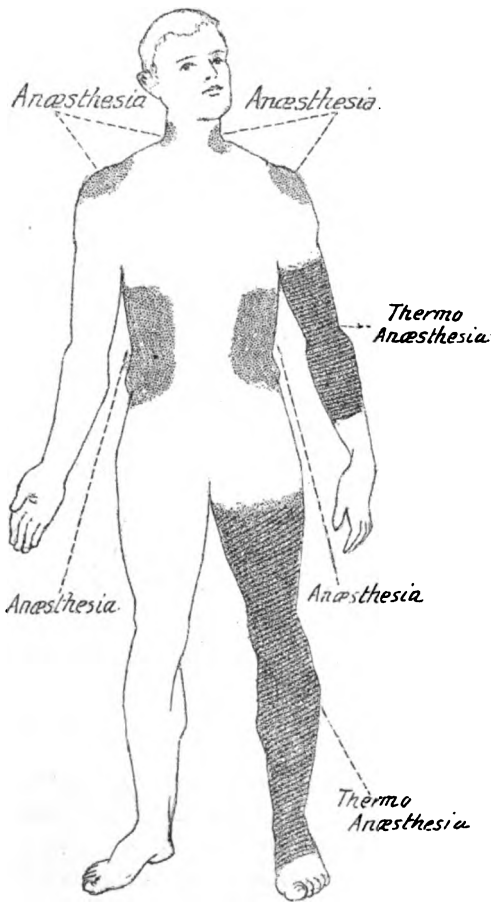
syringomyelia were more marked on the left side, while the motor symptoms were more marked on the right. These sensory symptoms show the segmental distribution commonly seen in this disease.

Deviation of the spine was a noticeable feature in this patient. It is a very common symptom of syringomyelia and, according to Bruhl,

FIG. 2.



SYRINGOMYELIA.

Showing Segmental Distribution of Sensory Symptoms.

exists in at least 50 per cent. of cases. This scoliosis, in my case, affected even the cervical spine and the position of the head, giving the neck and head a twist not unlike that seen in torticollis. This is shown to advantage in the photograph (Fig. 1), which shows also the weakness of the neck muscles, which made it necessary for the patient to have his

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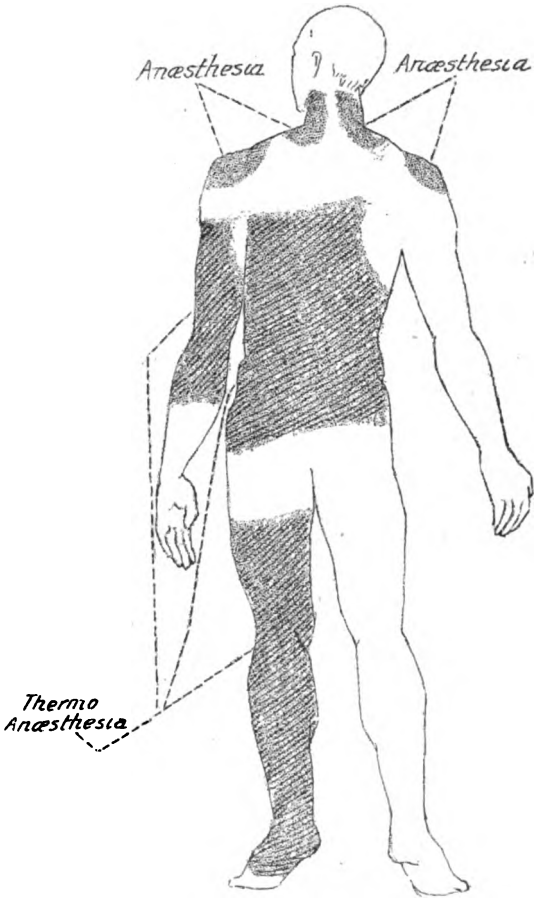
head supported by an attendant while being photographed. When the patient was lying down, this scoliosis was almost obliterated.

Trophic Disorders.—The right ankle was enlarged, but not so much so as formerly, according to the patient. It was undoubtedly an arthropathy similar to those seen in locomotor ataxia, general paresis and multiple sclerosis, to which diseases and to syringomyelia true spinal

FIG. 3.



SYRINGOMYELIA.

Showing Segmental Distribution of Sensory Symptoms.

arthropathy appears to be limited. Grating, denudation of bone, stalactites and effusion were not noted. It is probable that the arthropathy had been of the milder type, recognized by many original observers, in which there is a tendency to recover. This enlarged ankle is seen in the photograph.

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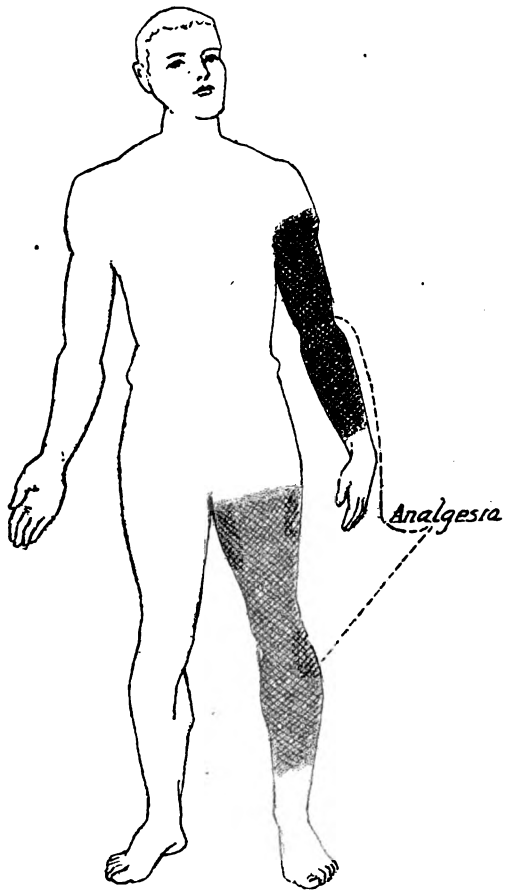
The toe-nails were very much deformed; they were enlarged and thickened, had transverse ridges and were quite brittle. The patient said that several times some of his nails had dropped off.

The man had deeply pigmented maculæ on the legs, which can be distinguished in the photograph. These spots and blemishes were the results of a slowly advancing trophic process in the skin. These

FIG. 4.



SYRINGOMYELIA.

Showing Segmental Distribution of Sensory Symptoms.

changes in the nails and skin have been observed in other cases of syringomyelia. Like most trophic disorders dependent upon central nervous disease, they do not appear to follow any constant law, and their exact pathogeny is obscure. In Morvan's disease, however, which is now generally recognized as only a special type of syringo-

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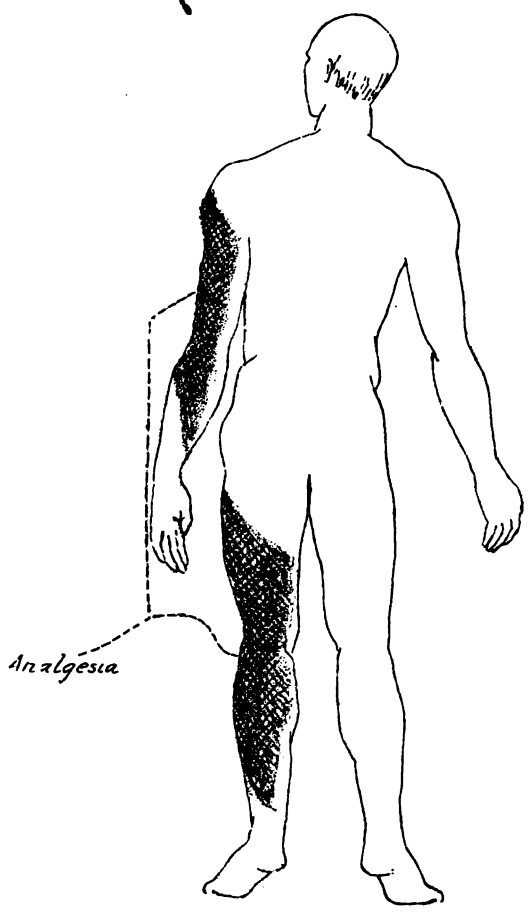
myelia, trophic changes, leading to total destruction of the fingers, the painless whitlow or "panaris analgesique," of French writers, are characteristic.

No mental symptoms were observed, nor any symptoms of bulbar involvement. Expansion of the chest was limited to not quite one inch, the left side of the chest being rather freer than the right. I have

FIG. 5.



SYRINGOMYELIA.

Showing Segmental Distribution of Sensory Symptoms.

made a similar observation several times in multiple neuritis, but never before in a case of cord disease. There were no oculo-motor symptoms. The bladder and bowels were innervated normally. The heart was rapid, the sounds normal.

Soon after admission the patient's temperature was noted occa-

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sionally to be increased—sometimes to the height of 102°. The lungs were carefully examined, but no evidence of phthisis was found. During August he had an attack of dysentery—which was prevalent at that time in the hospital. This weakened him so much that he was not able afterward to leave his bed even to be propped in a chair. In September I found on visiting him one day that he had a severe cough which had begun on the preceding day. Examination revealed pneumonia, under which he sank rapidly and died the same evening. His embarrassed respiration was doubtless the cause of the rapid progress of the lung complication.

At the autopsy, the cord presented the characteristic appearance described by Bruhl. The cervical enlargement was broadened and flattened (somewhat ribbon-like), and to the finger, gently pressing or squeezing it, gave the impression of containing a cavity. On section a large cavity was found beginning in the very lower part of the medulla, broadening out in the cervical region, and extending well down into the dorsal cord. It did not extend into the lumbar enlargement. This canal, or cavity, was very wide in the cervical enlargement; so wide in the fresh state that it is not an exaggeration to say that a small penholder could have been inserted into it. In this region it had caused great destruction or alteration of arrangement of the normal constituents of the cord, as seen even by the naked eye. This cavity was not exactly in the middle, but extended rather more to the right side—a fact which corresponds to the clinical findings. There were no special signs of inflammation, or of hemorrhage, about the cord.

Sections of the cord have been made from fourteen levels. For this work I am indebted to Dr. Albert A. Ghriskey and Dr. James Homer Wright, of the laboratory of hygiene in the University of Pennsylvania.

I wish here to particularly acknowledge my obligation for this work, and to call special attention to these beautiful sections, which have been stained by the Weigert method. The photographs of the sections were made by Dr. W. N. Gray, of the U. S. Army Medical Museum in Washington, to whom also I am much indebted. The drawings (Figs. 6, 7 and 11) were made by Dr. A. A. Stevens.

DESCRIPTION OF SECTIONS.[1]

General Features.

Under a high power the glioma, stained with methylene blue, presents numerous neurogliar cells. With Weigert's stain these are not quite so readily seen. They are well seen with a carmine stain. The fibrillary structure, described by some authors, does not appear plainly in these sections. It is apparent in some limited spots, where the tissue is not so dense as usual; but I have not been able to follow fibrillæ from their cells. Nevertheless, the glioma has a mesh-like formation,

[1] The author is entirely responsible for these descriptions, to which he has given much attention and care, especially to that of the medulla oblongata, in which the anatomy is complicated and still further confused by disease.

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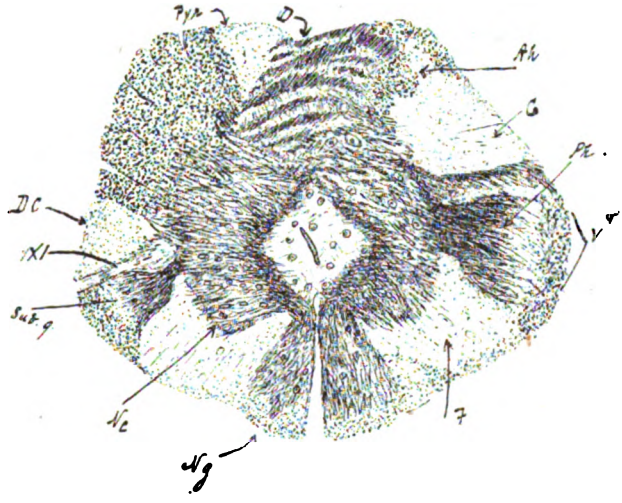
which shows innumerable minute spaces. Very few vessels are seen in the new formation, and nothing like the single longitudinal vessel of supply described by Bäumler. Most of the vessels are at or near the periphery of the mass, but at least one well-defined one is seen in the cavity. Refractive bodies, described by Bruhl, are plainly visible about and beyond the periphery of the new formation. The cavity has, at some points, what seems to be a lining membrane, which is even detached in some places, as described by others. This appearance is evidently caused by the shrinking away from the cavity-wall of the solid transparent contents of the cavity, carrying with it some adherent portions of the glia. At some levels a large group of broken-down epithelial cells, evidently the remains of the central canal, can be seen. This is situated in front of the cavity, and to one side

FIG. 6.



SYRINGOMYELIA. (*MEDULLA OBLONGATA*).

Ng.	Nucleus funiculi gracilis.	*V.*	Ascending root of fifth nerve.
Nc.	Nucleus funiculi cuniati.	*Ph.*	Posterior horn.
F.	Funiculus cuniatus.	*G.*	Gower's tract.
Sub. g.	Substantia gelatinosa.	*Ah.*	Anterior horn.
XI.	Accessory nerve.	*D.*	Decussation of pyramids.
DC.	Direct cerebellar tract.	*Pyr.*	Left pyramid.

The light, unshaded areas are degenerated. The central canal is surrounded with gliomatous material. The fibres of the accessory nerve are too diagrammatic. They are not so distinct in the section.

of the centre. It is not connected with the cavity. In the medulla, however, and again in the lumbar enlargement, the central canal, surrounded by gliomatous new formation, can be made out more plainly. There is but little pigment in the cord anywhere. No conspicuous signs of inflammation or hemorrhage can be seen; the membranes are not unduly thickened, nor are the bloodvessels enlarged, increased nor crowded with leucocytes. Most of the multipolar cells in the anterior horns of the cervical enlargement are atrophied and granular. The lateral pyramidal tracts are densely degenerated, and contain only a few scattered nerve fibres in varying stages of decay. The direct cerebellar tracts, to the outside of the crossed pyramidal tracts, are much better preserved than the latter. At some levels they

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contain a sufficient number of normal fibres to make a contrast to the adjacent pyramidal tracts visible in the mounted section to the naked eye. This is significant in view of the connection of these fibres with Clark's vesicular column, and their possible influence on equilibration—which was not disturbed in this patient. They are not so well preserved on the right as on the left side; and in the medulla at the level of the decussation of the pyramids, the region of the direct cerebellar tract, as well as of the pyramidal tract before it decussates, is degenerated. The integrity of Clark's vesicular column is difficult to determine, because the region in which it is found is stretched around the end of the cavity in such a way as to distort and confuse the nerve elements.

This cord, followed through its whole length, presents an epitome of the gliomatous process in all its various stages. Thus, in the medulla the process is diffused in various areas, and a cavity has not yet been formed. In the cervical region the cavity is formed, and is very extensive, with secondary effects in the white matter; in the dorsal region the process is more limited, and the glioma tends to one side; while in the lumbar enlargement the process is still in an early stage, prior to the formation of a cavity.

SECTION 1 (Fig. 6).—This is the highest section made—about the region of the decussation of the pyramids. The central canal, lined with epithelium, is seen. It is surrounded by gliomatous material, which has not yet begun to break down into a cavity, although under the microscope it is seen to be brittle and friable. The decussating fibres are seen and the remnants of the anterior horns cut off by them, lying to their outer side. It is to be noted that the fibres running toward the right are much more numerous than those running in the opposite direction; also, that the left pyramid is degenerated.[1] The nuclei of the funiculus gracilis and funiculus cuniatus are well preserved. The appearance of cells and ganglion formation can be made out in both. The funiculus cuniatus itself, lying at the head of the column of Burdach, is deeply degenerated on each side. The funiculus gracilis, or head of the column of Goll, is much better preserved. The beginning of the reticular process is visible, although much broken up by glia. The substantia gelatinosa can be seen around the ends of the posterior horns. These posterior horns are of different size and appearance, the left being much the smaller. To either side of the central region (here occupied by glia) is a collection of gray matter with some large cells; and from this region fibres arise and run toward the side of the cord, skirting along the edge of substantia gelatinosa. These are doubtless the fibres of the accessory nerve. In the right lateral region of the cord, occupied by both the direct cerebellar tract and Gower's tract, the cord is much more degenerated than in the corresponding region on the left. On the opposite side of the cord a small degenerated area is seen also in front of the posterior horn. This is the left direct cerebellar tract, showing here to advantage its triangular shape.

Just below this region a section (not shown in the illustrations) shows extensive gliomatosis, with a very large cavity. The new formation occupies not only the central region but also portions of the right lateral column and of the posterior columns. The left antero-lateral column is partially preserved. But little gray matter is visible, the cord being a hollow tube with some conducting tracts of white matter preserved.

SECTION 3 (Fig. 7).—Upper cervical region. Here the cavity extends far across the cord, almost symmetrically on either side. The gliomatous formation extends out along the posterior horns, almost cutting off the posterior columns from the rest of the cord. The lateral tracts are much degenerated, especially the right,

[1] This degeneration of the left pyramid *above* the cavity is worthy of special note. It will be remembered that the patient's motor symptoms were more marked on the right side.

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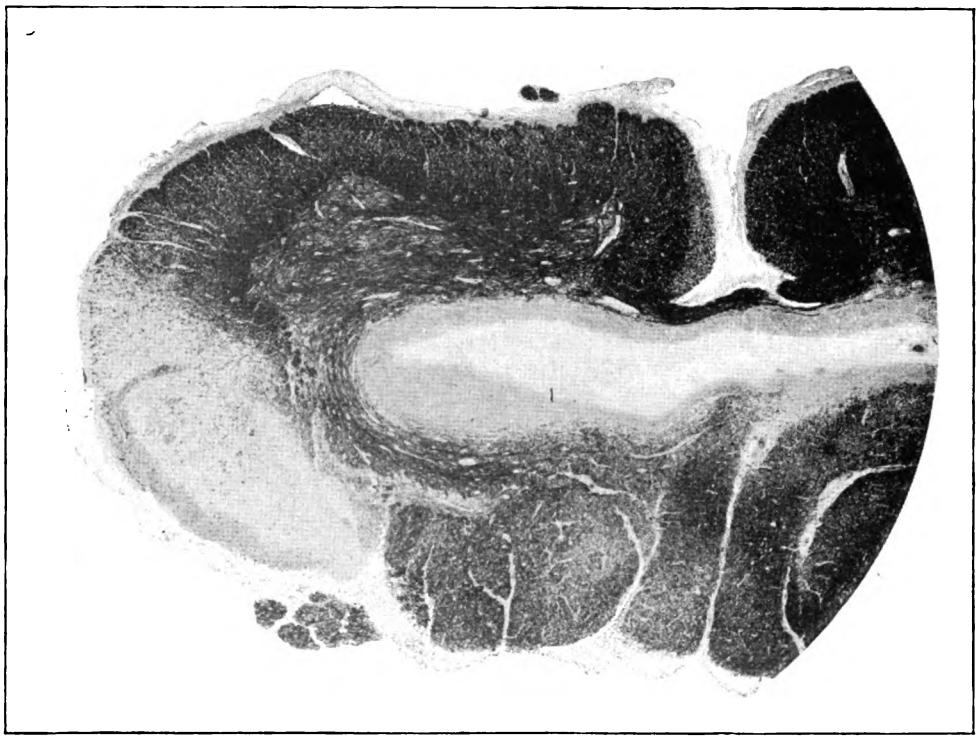
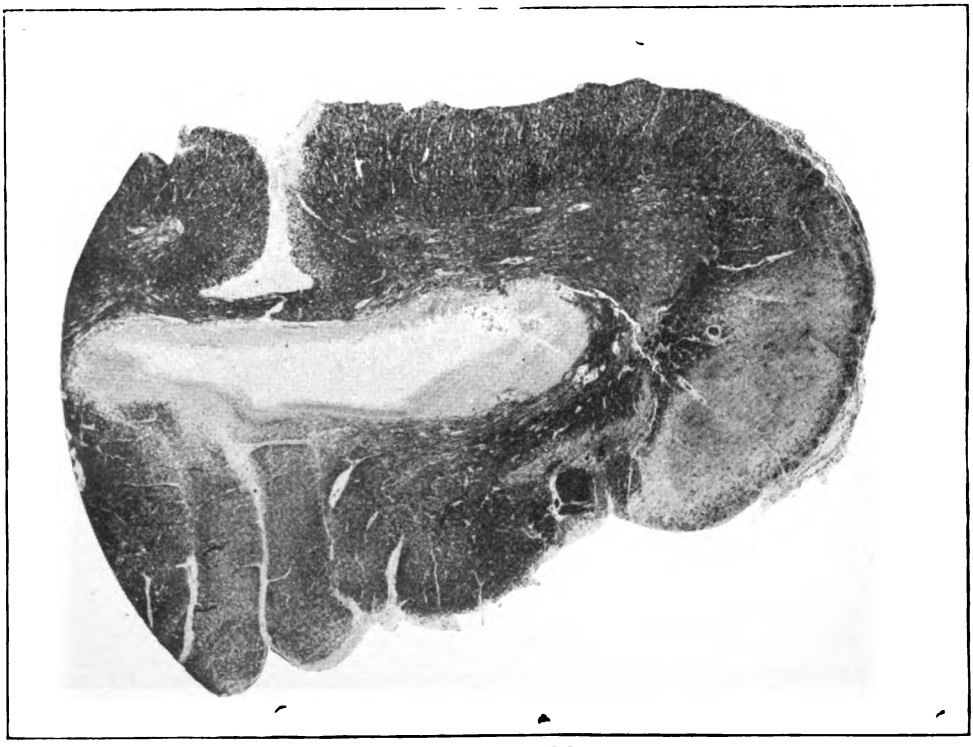


SYRINGOMYELIA.
Cervical enlargement (Section 4).

FIG. 9.



SYRINGOMYELIA.
Cervical enlargement (Section 5).

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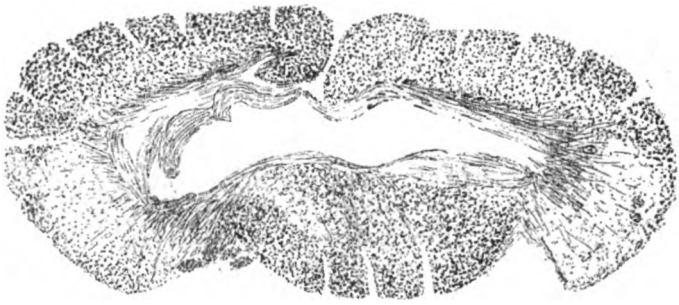
and the right direct pyramidal tract. Remnants of the anterior horns can be made out as narrow projections in front of the cavity (the left alone is shown in the drawing); they contain only a few multipolar cells degenerated. The anterior parts, especially, of the posterior columns, are degenerated. But little trace of posterior root-zone. The gliomatous tissue extends almost entirely around the cavity as a rim or circle.

[NOTE.—Many of these general features are characteristic of the segments lower down. The cavity tends to run to the right side in the dorsal cord (as we shall see) and to diminish in size. The lateral tracts will be observed in all the sections to be degenerated to the very end of the cord. The anterior horns are degenerated only in the cervical region. They appear with a full complement of cells in the lumbar enlargement. From the region of the decussation, first described, the central canal is partly obliterated; its epithelial lining, however, is found in almost every section as a group of epithelial cells not connected with the cavity. The cord is distinctly smaller in the cervical region on the right than on the left side. In all, fourteen sections from different levels of the cord were mounted and have been carefully examined. In order, however, to avoid repetition, only a selected number of these are illustrated and described.]

FIG. 7.



SYRINGOMYELIA.

SECTION 4 (Fig. 8).—*Photomicrograph.*—The cavity here begins to trend toward the right side (left in the photograph). It is lined with a gliomatous material. Remains of the central canal can be seen in a group of epithelial cells in front of the cavity and to one side of its normal position. It presents irregularly the outlines of a double canal. It does not appear in the photograph. The anterior white commissure is preserved. The gray matter is stretched around the ends of the cavity and only a few multipolar cells are visible (very indistinct in this photograph) in the anterior horns. The lateral pyramidal tract is deeply degenerated, and the direct pyramidal tract slightly so. The posterior horns and root-zones cannot be well distinguished.

SECTION 5 (Fig. 9.)—*Photomicrograph.*—Cervical region next below Section 4. Cavity trends still further to right. (In this the image is not reversed.) The anterior horn can be well distinguished. It contains more multipolar cells than the former section, but under a high power they are seen to be degenerated. Otherwise the appearances are much the same as in Section 4. The direct pyramidal track on the right is more degenerated than on the left. The anterior portion, especially, of the columns of Goll are involved in gliomatosis.

[NOTE —In the next two segments, not shown here, the cavity again becomes almost symmetrical, before deviating finally in the dorsal region.]

SECTION 9 (Fig. 10.)—*Photomicrograph.*—Upper dorsal. Here the cavity trends

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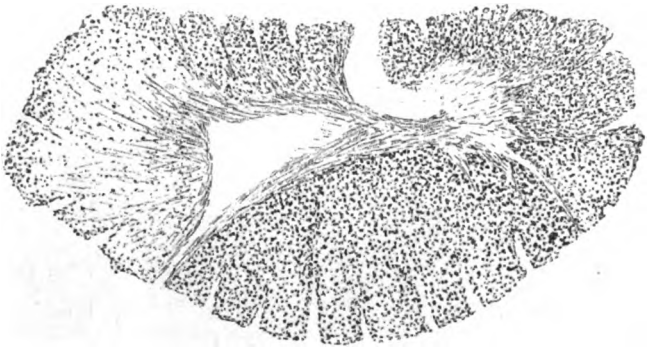
to the right (image not reversed). The gliomatous tissue extends down both posterior horns. All around it the white, as well as gray, matter is degenerated, especially in the direct and crossed pyramidal tracts (more marked in the right). The anterior parts of the posterior columns also are affected. The gray matter is almost entirely destroyed, except the anterior horns, which are seen as mere small projections in front of the cavity. They contain but few cells.

SECTION 12 (Fig. 11).—This drawing represents very well a section from the mid-dorsal region. (The image is reversed.) The cavity is to the right (left in figure), and follows out the posterior horn quite to the periphery. The right lateral tract is very much degenerated, and the left is rather more so than is shown in the drawing. The right anterior horn is also practically destroyed. The left anterior horn preserves its shape, and under the microscope some motor cells are visible in it. The posterior columns show degenerated fibres scattered through them.

SECTION 14 (FIG. 12).—*Photomicrograph.*—From lumbar enlargement. The cord here presents a striking contrast to its appearance higher up. Its general shape

FIG. 11.



SYRINGOMYELIA.

and size, as well as those of its gray matter, are normal. The anterior horns are large and well supplied with motor cells. The posterior horns and root-zones are plainly seen. In but two features does it present very marked abnormal appearances; and these, in view of the diseased state of the cord higher up, are full of interest. First, the lateral, or crossed, pyramidal tracts, which are here small and have come to the periphery, are degenerated. Second, the region of the central canal, in the posterior gray commissure, shows distinctly gliomatous change. Already the central canal is obliterated, but no gliomatous cavity has yet taken the place of the normal one. This proves very beautifully that the cavity in syringomyelia is *not* a mere expansion of the normal canal. On the contrary, the normal canal does not exist any longer, and its place is taken by the remains of its columnar epithelial cells, which have undergone coagulation necrosis with loss of their characteristic columnar appearance. This group of broken-down cells is surrounded by the gliomatous mass, which at this level occupies but a small space in the gray commissure. We see here, probably, an early stage of the gliomatous process at the lowest point of its downward progression in the cord. Slight degeneration is seen here in the posterior columns near the periphery.

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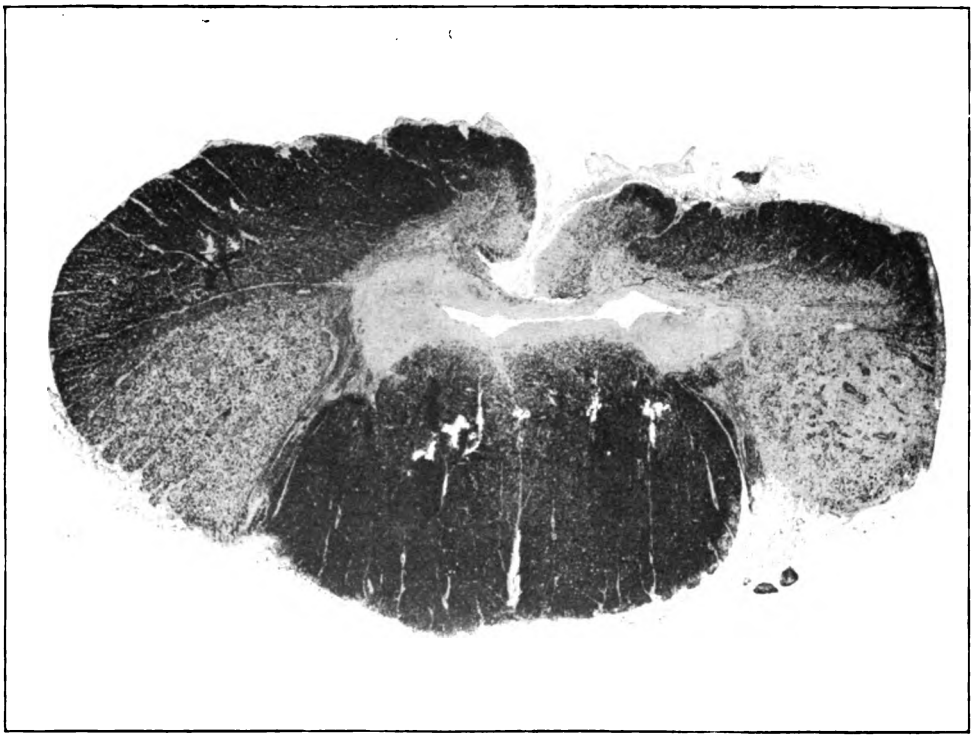
FIG. 10.



SYRINGOMYELIA.
Upper dorsal region (Section 9).

FIG. 12.

SYRINGOMYELIA.
Lumbar enlargement (Section 14).

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A few special points occur to me before closing this report.

Already special types and varieties of syringomyelia begin to appear and to be recognized. These are the "formes frustes" of French writers. The most notable of these is the "type Morvan," which, until very recently, was claimed by many to be a distinct disease. Its special symptom is a destructive whitlow, painless and chronic, of the fingers. Joffroy has already proved that this destructive lesion is trophic, and that it depends upon a gliomatous change leading to syringomyelia. Other trophic lesions sometimes dominate the scene, and by appearing early and constituting the most conspicuous feature, may be confusing in the diagnosis. Joint changes may thus appear, and be called rheumatic. In my own case it may be recalled that an enlargement of the ankle was the first symptom noted by the patient. This was evidently a true spinal arthropathy. Another lesion is the one noted by Charcot of enlargement of the hand, closely simulating that of acromegalia, which Charcot calls chiromegalia. In his case the change was limited to one hand, and was proved to be symptomatic of syringomyelia.

Other varieties are the asymmetrical cases. These may be monoplegic or hemiplegic in type. A case has already been reported in which a hemiplegia of spinal origin was the earliest symptom. This doubtless depends upon the cavity extending, as in my own case, more toward one side.

The possible confusion of syringomyelia and some of the cases of so-called Friedreich's ataxia, has always been an interesting point to me. In some cases of syringomyelia the posterior root-zones and columns are involved (the secondary extrinsic symptoms already referred to). This fact, together with the existence of scoliosis, and the well-recognized fact that both diseases are probably developmental or embryonal in origin, and the still more significant fact that in three out of the twelve autopsies in cases of Friedreich's ataxia, collected by Griffith, cavities were found—all these facts suggest an analogy and a possibly deep relationship between the two diseases. Dejerine contends that Friedreich's ataxia is due to a gliomatous change.

Probably the most widely received opinion of the exact nature of syringomyelia is that it depends upon the proliferation of an embryonal tissue remaining in that region of the cord in which the medullary folds in the embryo close over to form the central canal. It is thus a developmental defect, and the causes of it reach far back into the intrauterine life.

That this degeneration is not a mere sclerosis of connective tissue finds a curious confirmation in a work of Chaslin,[1] who observed some special features in the histo-chemical reaction of this gliomatous material which serve to differentiate it.

[1] Quoted by Bruhl (p. 89).

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THERMOGENETIC CENTRES, WITH SPECIAL REFERENCE TO AUTOMATIC CENTRES.[1]

By Edward T. Reichert, M.D.,

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It is a generally accepted belief among physiologists and clinicians that the heat mechanism in the higher animal organisms consists of three distinct parts—thermogenetic, thermolytic and thermotaxic—the first being directly and specifically concerned in the production of heat, the second in the dissipation of heat, and the third in the regulation of the relations existing between the former, whereby the mean temperature of the body is maintained. The muscles are regarded as the chief heat-producing structures, the heat formed in them through the action of heat-centres being entirely apart from that incidentally arising during muscular contraction or relaxation.

The chief objects of the present contribution are an investigation of certain centres which are concerned in heat production, a consideration of the existence of thermotaxic centres, and, finally, the demonstration of the localization of the general or automatic thermogenetic centres.

Wood[2] was the first to demonstrate calorimetrically the existence of specific heat-centres. He found that "destruction of the first cerebral convolution in the dog posterior to and in the vicinity of the sulcus cruciatus is followed at once by a very decided increase of heat production, while after irritation of the same nervous tract there is a decided decrease of heat production." He was led to believe that the centre was probably thermo-inhibitory, and that when active affected heat production by acting upon the general heat-producing centres of the body. Since the publication of his memoir, a number of experimental researches bearing directly upon the existence and functions of heat-centres have appeared, notably these of Ott, Richet, Aronson and Sachs, Girard, Baginsky, White and myself.

Besides the thermo inhibitory (cruciate) centre of Wood in the brain cortex, Ott[3] has located another at the juncture of the supra-Sylvian and post-Sylvian fissures, and extending downward to the fissura postica, which in contradistinction to Wood's centre (cruciate), he named the Sylvian. His calorimetrical observations show that the phenomena following excitation or destruction of this region are

[1] Read before the American Physiological Society, December 27, 1892.

[2] Fever: A Study in Morbid and Normal Physiology, Smithsonian Contributions to Knowledge, No. 357, 1880.

[3] Journal of Nervous and Mental Diseases, February, 1888.

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similar to those resulting from the same disturbances of the cruciate centres. There are, however, certain differences. Injury to the cruciate centres causes the bodily temperature gradually to increase and to remain elevated for from three days to three months; heat production at the end of twenty-four hours is elevated above the normal, then returns to its original level, to again rise on subsequent days; the changes in heat dissipation closely follow those of heat production. After injury of the Sylvian centres the temperature rises; immediately or at the end of twenty-four hours heat production and heat dissipation are increased, after that they usually fall below the normal, although the temperature remains elevated. Both sets of centres when irritated depress bodily temperature, and when one is excited the extremities of the opposite side of the body are affected. The cruciate centres are the stronger.

Other heat centres are believed to be located in the basal ganglia and parts below. Ott[1] found that puncture of the corpus striatum caused an elevation of temperature, and in a more recent contribution[2] states that lesions in front of and beneath the striated bodies were also followed by a rise of temperature, attended by an increase of heat production and heat dissipation. Aronson and Sachs,[3] Girard,[4] Baginsky[5] and White[6] also have found that injury to these ganglia causes a rise of bodily temperature. The experiments both of Ott and Aronson and Sachs indicate that this rise is due to an increase of heat production. Ott[7] also asserts that puncture of the anterior inner end of the optic thalmus causes a rise of temperature, which is due to increased heat production; and that puncture at the point between the optic thalmus and the corpus striatum near the median line, known as Schiff's crying centre, induces similar results.

Girard, Aronson and Sachs, and White, however, have found that lesions of the white matter in the region of the striated bodies do not produce any material increase of temperature, unless the gray matter of these bodies or the thalami is involved. From these results, as well as from my own investigations (not yet published), it seems clear that the phenomena noted by Ott, following punctures of the extra-striate and crying centre regions, were due to the injury of the adjacent gray matter. Moreover, White gives potent reasons for the belief that the thalami do not contain heat centres, and that when their injury is

[1] Journal of Nervous and Mental Diseases, April, 1884.
[2] Therapeutic Gazette. September, 1887.
[3] Pflüger's Archiv., Vol. XXXVII, S. 232, 1885.
[4] Archiv. de Physiologie, Vol. VIII, p. 281, 1886.
[5] Virchow's Archiv., November, 1886.
[6] Journal of Physiology, Vol. XI, No. 1. 1890; Vol. XII, No. 3, 1891.
[7] Journal of Nervous and Mental Diseases, March, 1887, February, 1888; Therapeutic Gazette, September, 1887; and Fever, Thermotaxia and Calorimetry, 1889.

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followed by an increase of temperature it is due to the involvement of the corpus striatum. As evidence that the thalami cannot be looked upon as being heat centres, White refers to the following points: First, that in the development of these bodies the thalami are derived from the thalamencephalon and the corpora striata from the proencephalon; second, that the cells of the thalami are three times the size of those of the striated bodies and less angular; third, that lesions in the region of Ott's thalamic centre are almost certain to involve the caudate nucleus; fourth, that the rise of temperature following injury to the thalami is slight (0.4° F.) compared with that (1.8° F.) following lesions of the corpora striata. All of which indicate that the functions of the two sets of ganglia are different, and that the thalami are not heat centres. Yet Ott gives what at first sight appears to be a strong point in favor of the existence of heat centres in the thalami, in that the temperature curves produced by lesions of the two sets of ganglia are different: the rise when the former is injured is rapid, it reaches about 105° F., and it lasts for about three days; while injury to the latter causes a rapid rise during three hours to 109.5° F., which is followed by a return to the normal in about six hours. A number of experiments which I have recently performed give substantial support to White's non-belief of the thalami containing heat centres. Thus I have found in a number of instances, in which the crura or pons was injured, that a rise of temperature followed similar to that noted by Ott after puncture of the thalamus. It seems that in Ott's experiments, as well as in my own, the rise of temperature was due to the excitation of fibres coming from the striate centres and running to the centres below, rather than that heat centres were directly excited. Under the circumstances we are not justified in admitting of the existence of heat centres in the thalami.

White found that excitation of the septum lucidum caused a rise of bodily temperature, but it is likely that this is due to irritation of the striate bodies.

Injury to the pons is followed by uncertain effects on bodily temperature. Bruck and Günter,[1] Wood, Ott and myself all have found that a rise may occur. The results obtained by the former were variable; sometimes there was a temporary rise followed by a fall; at others a persistent rise until death, and in others a persistent fall. Ott recorded in some cases a transient increase, and in others a diminution. Wood, in four experiments in which partial or complete section was made of the pons at its junction with the medulla oblongata, recorded in every one an increase of temperature and heat production. Wood found that when the section was made lower, sufficiently to compromise the vaso-motor centres, there invariably occurred a decided fall of temperature and heat production.

[1] Pflüger's Archiv., III, S., 579.

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The fact on the one hand of an increase of temperature and heat production following lesions of the pons and of the bulb above the vaso-motor centres, and, on the other hand, of the absence of these phenomena when the section is sufficiently low to affect the vaso-motor centres, indicates that the important factor in the increase of temperature and heat production is located in the medulla above the region of these centres, and is doubtless of the nature of a thermogenetic centre; but whether these results are to be attributed to the irritation caused by the puncture, or section, or to the removal of thermo-inhibitory impulses coming from the cortical thermo-inhibitory centres, is not manifest.

The part played by the spinal cord as a heat centre is by no means clear, although many physiologists have assumed, for theoretical reasons, that important centres of this kind there exist. It is an established fact that complete sections of the cord in the upper portions are always followed, immediately or within a few hours, by a rapid and profound fall of bodily temperature, unless the ambient temperature to which the animal is subjected is about that of the body. This result is generally believed to be largely or solely due to the decided increase in the loss of heat which depends upon the vaso-motor palsy following the section, but in the calorimetrical experiments of Wood on nine dogs, in which the cord was severed at various points between the medulla oblongata and the lower dorsal vertebræ, there occurred in every instance a diminution of temperature and heat production, and in most instances an increase of heat dissipation. As a general result, he found that heat production was remarkably diminished, thus leading to the inevitable conclusion that the fall of temperature after section of the cord is not only due to an increased loss of heat, but chiefly to the marked diminution of heat production.

After partial sections of the cord a rise has sometimes been noted in certain or all of the parts below the point of section, and similar results have been found by clinicians in cases of spinal injury. Schiff states that hemisection at the level of the calamus scriptorius is followed by an increase of temperature in various regions of the same side below the point of section. But in these cases it is not known whether the increase is due to lessened heat dissipation or to increased heat production, and whether the result is direct or reflex. Ott[1] found in experiments in which partial sections of the cord were made, and the animals subjected to heat of the temperature of the body, that when the anterior columns were nearly divided there occurred a rise of temperature, but when the posterior columns were divided there followed a fall; when the lateral columns above or in conjunction with the gray matter

[1] Journal of Nervous and Mental Diseases, July, 1887.

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or part of the posterior columns were cut there generally was noted a considerable rise. The most pronounced rise was seen after division of the lateral columns. Calorimetrical observations led him to believe that the rise of temperature was due to increased heat production, this in turn being dependent upon the cutting off of thermo-inhibitory impulses coming from centres higher situated. Such experiments, however, possess little or no import in demonstrating the value of the spinal heat mechanism under normal conditions. Moreover, my own experiments, performed at ordinary external temperatures, show that similar sections are almost invariably followed by an immediate and distinct fall of bodily temperature. Consequently, the experiments of Wood, which indicate that complete transverse section of the spinal cord in animals subjected to ordinary external temperatures is followed by a profound diminution of heat production and temperature, remains uncontradicted by experiment, and we are thus led to the conclusion that under such circumstances the thermogenetic centres in the cord are incapable, as independent centres, of supplying the normal output of heat.

From the foregoing facts it is apparent that certain regions of the brain cortex, corpus striatum, medulla oblongata and spinal cord are in some way concerned in thermogenesis. The question naturally arises, are any or all of these centres directly connected with thermogenesis or do they indirectly affect it through thermotaxic or thermolytic centres? That none of the cortical or basal centres are thermolytic is manifest in the fact that their excitation or destruction is followed in every instance primarily by alterations in heat production,—the changes in heat dissipation being dependent upon these, and those in temperature upon the excess or diminution of heat production. Are they, then, thermotaxic or thermogenetic? Ott regards them as being thermotaxic, because, as he believes, they may become under different external circumstances either exciting or inhibitory to the general thermogenetic centres. Such a conception, however, of the operations of a thermotaxic centre is opposed to the common understanding of the workings of a centre which controls the actions of two opposing functions which co-operate for the attainment of a common end. In other words, as McAlister deems it, a thermotaxic centre, to increase or decrease bodily temperature, would act coincidently upon both heat-producing and heat-dissipating functions, the two being affected in opposite directions. At all events, a thermotaxic centre should be capable of affecting both functions, even though not simultaneously as believed by McAlister. But, in connection with the centres referred to, all our knowledge teaches us that they exert their influence solely upon thermogenesis.

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We have an analogy of the heat mechanism in that of the circulation. The former serves, through the reciprocal co-ordinated actions of its parts, to maintain a mean bodily temperature; the latter, through similar actions, to maintain a mean standard of blood pressure. The mean blood pressure is maintained not through the agency of any taxic or regulating centre, but through the reciprocal co-ordinated actions of the cardiac and vaso-motor mechanisms, which are effected through the agency of the blood pressure. There is no reason for believing in the existence or even desirability of a specific regulating centre or centres for the maintenance of the mean blood pressure, nor is there any sufficient reason for a like belief in regard to the heat mechanism. It is true that these so-called thermotaxic centres of Ott do, in a sense, regulate the amount of heat produced, and thus may affect the bodily temperature, but they only act upon one portion of a dual interdependent mechanism, leaving the other to take care of itself. For the same reason we might regard the cardio-inhibitory and cardio-accellerator centres as being the regulator centres for the maintenance of the mean blood pressure. They affect the beat of the heart, and the former by this action may profoundly alter the blood pressure, yet it would be illogical to look upon these as being specific centres for the maintenance of the mean pressure.

In fact, all our information leads to the belief that the relations existing between the functions of thermogenesis and thermolysis are but the counterparts of those existing between the cardiac and vascular centres. If the mean blood pressure is too high, the heart's action is inhibited or the vessels dilate; if the bodily temperature is too high, heat production is diminished or heat dissipation increased. While it is obvious that alterations in one or the other functions in each mechanism may be effectual in bringing about a compensation, both may simultaneously be active. Just as the reciprocal actions between the cardiac and vascular mechanisms are determined by the condition of the blood pressure, so the same actions between the processes of heat production and heat dissipation are determined by the condition of the temperature of the blood; but in both cases the reciprocal workings may be disturbed by various intrinsic and extrinsic circumstances, with consequent variations in the mean standards.

While there may be some difference in opinion as to whether we should regard the cortical and basal centres as being thermogenetic or thermotaxic, there can be little room for doubt as to the nature of the work they perform. The fact, shown by Wood's experiments, that the full complement of heat may be produced after section of the pons from the medulla oblongata, renders it evident that the general heat-producing centres are located below the pons; consequently, we are led

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to the conclusion that the relations existing between these centres and those below the pons are analogous to those existing between the extra-cardiac and intra-cardiac mechanisms. The cortical centres, when stimulated, inhibit heat production, hence are thermo-inhibitory; the centres in the corpora striata, when stimulated, increase heat production, hence are thermo-accellerator. Both sets of centres apparently act upon the general centres below the pons.

The question arises as to the nature of the subpontine centres, whether they are in the form of one diffused centre extending from the pons down the cord, or whether there are physiological and anatomical distinctions. There is strong evidence to prove that the portions of the thermogenetic mechanism in the medulla and cord are physiologically different. Thus, both Wood and Ott have found that after section between the pons and medulla, heat production and heat dissipation are increased; while on the other hand, Wood's experiments, in which the cord was cut, elicit in every case a profound diminution of temperature and heat production. The results in the two classes of experiments on heat production are opposite, and point to the conclusion that the chief portion of the subpontine centres is in the medulla, and that the part in the spinal cord is inefficient independently of the higher centres to produce the normal amount of heat. But in a recent calorimetrical research on dogs, while finding evidence of the physiological differentiation of the medullary and spinal centres, I have obtained results which conclusively show that the thermogenetic centres in the cord are of far more importance than the experiments of Wood indicate, and which, moreover, justify the belief that they are the general or automatic heat centres.

These experiments were made with the aid of the calorimeter and have been described in full.[1] In all of the experiments, with but a single exception, the animals were studied preliminarily for two consecutive hours, in order to obtain mean standards of heat production, heat dissipation and bodily temperature; in the experiment excepted, a normal study was made for but a single hour. Immediately after this normal study the animals were etherized and section of the cord made at the junction between the first and second cervical vertebræ. The bodily (rectal) temperature was then taken, and the animal placed within the calorimeter. With the exception of Experiments 4, 9 and 10 there did not occur any appreciable loss of blood; in Experiments 4 and 9 the hemorrhage amounted in each to about two ounces, and in Experiment 10 to about four ounces. The motor reflexes, after recovery from the anesthesia, were very good in each experiment, with the exception of Experiments 8, 9 and 10, in which they were poor, especially in the

[1] University Medical Magazine, January, 1890.

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latter. After each experiment the animal was killed with chloroform, and a careful autopsy performed, in which the portion of the cord between the medulla and fourth cervical vertebra was removed, the membranes being left intact, and cautious dissection made to show the completeness of the section. All experiments in which the sections were not unquestionably perfect have been omitted from this memoir.

The following are the condensed records of ten experiments in which the sections were complete. The heat units are in kilogramme degrees; the thermometric records are in the Centigrade scale; and the temperatures of the animals were taken in the rectum, the thermometer being inserted in every observation four inches.

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EXPERIMENT 1. Dog; weight, 11.904 kilos.

	Hourly Heat Production	Hourly Heat Dissipation	Rectal Temperature. beginning of hour.	Rectal Temperature. ending of hour.	Rectal Temperature. gain or loss (+ or —).	Mean Room Temperature.
1st hour before section	31.718	33.051	39.03	38.89	— 0.14	21.3
2d " " "	27.552	27.552	38.89	38.89	+ 0.00	21.4
1st " after "	27.603	25.127	39.27	39.53	+ 0.26	21.7
2d " " "	28.541	27.113	39.53	39.68	+ 0.15	22.5
3d " " "	27.830	24.211	39.68	40.06	+ 0.38	21.4
4th " " "	26.508	24.032	40.06	40.32	+ 0.26	21.3

EXPERIMENT 2. Dog; weight, 12.017 kilos.

1st hour before section	39.486	40.832	39.02	38.88	— 0.14	21.7
2d " " "	41.652	43.763	38.88	38.65	— 0.23	21.5
1st " after "	37.082	46.600	38.83	37.84	— 0.99	21.8
2d " " "	31.159	37.600	37.84	37.17	— 0.67	21.7
3d " " "	37.809	37.611	37.17	37.20	+ 0.03	21.8
4th " " "	34.143	34.712	37.20	37.12	— 0.08	21.8

EXPERIMENT 3. Dog; weight, 7.936 kilos.

1st hour before section	14.880	17.800	39.22	38.68	— 0.46	18.6
2d " " "	11.964	14.250	38.68	38.32	— 0.36	19.6
1st " after "	11.254	22.750	38.29	36.48	— 1.81	20.3
2d " " "	17.952	22.650	36.48	35.74	— 0.74	21.3
3d " " "	16.397	19.950	35.74	35.18	— 0.56	21.2
4th " " "	17.728	19.950	35.18	34.83	— 0.35	21.4

EXPERIMENT 4. Dog; weight 9.276 kilos. NOTE: Dog lost about two ounces of blood after the operation.

1st hour before section	30.352	30.352	39.28	39.28	+ 0.00	16.6
2d " " "	30.279	30.742	39.28	39.22	— 0.06	17.3
1st " after "	23.924	37.041	38.85	37.08	— 1.77	18.0
2d " " "	25.064	34.402	37.08	35.82	— 1.26	18.5
3d " " "	29.079	30.709	35.82	35.60	— 0.22	18.7
4th " " "	28.222	30.815	35.60	35.25	— 0.35	18.6
5th " " "	31.342	30.823	35.25	35.32	+ 0.07	19.0

EXPERIMENT 5. Dog; weight, 9.514 kilos.

1st hour before section	33.056	35.558	39.18	38.93	— 0.25	21.6
1st " after "	30.684	45.525	38.73	36.78	— 1.95	21.1
2d " " "	32.872	38.200	36.78	36.08	— 0.70	21.6
3d " " "	31.722	37.050	36.08	35.38	— 0.70	22.6
4th " " "	35.512	36.425	35.38	35.26	— 0.12	22.0
5th " " "	27.719	29.850	35.26	34.98	— 0.28	22.0

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EXPERIMENT 6. Dog; weight, 10.334 kilos.

	Hourly Heat Production	Hourly Heat Dissipation	Rectal Temperature. beginning of hour.	Rectal Temperature. ending of hour.	Rectal Temperature. gain or loss (+ or —).	Mean Room Temperature.
1st hour before section	36.869	39.600	38.78	38.45	—0.33	20.8
2d " " "	34.612	35.350	38 45	38.24	—0.21	20.6
1st " after "	35.397	40.775	38.05	37.40	—0.63	20.7
2d " " "	29.338	41.575	37.40	35.92	—1.48	20.7
3d " " "	21.707	34.450	35.92	34.38	—1.54	20.9
4th " " "	22.844	29.050	34.38	32.63	—0.75	21.5

EXPERIMENT 7. Dog; weight, 11.791 kilos.

1st hour before section	24.577	26.275	39.12	38.94	—0.18	17.6
2d " " "	26.889	26.700	38.94	38.96	+0.02	18.9
1st " after "	21.270	31.325	39.18	38.22	—0.96	19.0
2d " " "	18.767	28.200	38.22	37.22	—1.00	20.2
3d " " "	19.820	26.800	37.22	36.48	—0.74	20.9
4th " " "	22.983	24.775	36.48	36.29	—0.19	19.9

EXPERIMENT 8. Dog; weight, 9.627 kilos.

1st hour before section	24.119	27.431	38.94	38.51	—0.43	21.4
2d " " "	19.424	21.132	38.51	38.65	—0.14	21.1
1st " after "	15.290	31.464	38.15	36.05	—2.10	21.0
2d " " "	6.865	24.500	36.05	34.02	—2.03	21.5
3d " " "	10.889	20.900	34.02	32.85	—1.17	21.6

EXPERIMENT 9. Dog; weight, 10.203 kilos. NOTE: Dog lost about two ounces of blood after operation.

1st hour before section	23.806	25.275	39.36	39.18	—0.18	16.7
2d " " "	27.664	27.175	39.18	39.24	+0.06	16.5
1st " after "	8.921	33.000	39.18	36.23	—2.95	18.3
2d " " "	18.464	29.075	36.23	34.93	—1.30	20.3
3d " " "	17.215	26.275	34.93	33.82	—1.11	21.3
4th " " "	17.771	26.075	33.82	32.68	—1.14	22.0

EXPERIMENT 10. Dog; weight, 10.457 kilos. NOTE: Dog lost about four ounces of blood after operation, and exhibited marked evidences of shock throughout the experiment after the section.

1st hour before section	39.802	41.475	38.87	38.67	—0.20	22.0
2d " " "	41.887	40.800	38.67	38.80	+0.13	22.0
1st " after "	20.644	44 400	39.04	36.20	—2.84	21.9
2d " " "	9.265	30.000	36.20	33.72	—2.48	21.5
3d " " "	7.691	23.500	33.72	31.83	—1.89	21.3

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In studying these figures it is necessary to bear in mind the variations which occur in heat production, heat dissipation and bodily temperature in normal animals subjected to similar external conditions. These, as I have shown,[1] are generally quite noticeable. In such studies I have found that heat production and heat dissipation are subject to continual fluctuations, and without obvious cause, unless it be an unstable condition of the processes of production and dissipation. The mean average variation of heat production in these experiments, taking the lowest and highest hourly records in each as the standards, was about 40 per cent., the greatest being 59 per cent. and the least 21 per cent. The oscillations of heat dissipation were similarly marked.

There was also a general tendency during the consecutive hours of observation to a slight but persistent decline of heat production, heat dissipation and bodily temperature, the most noticeable changes occurring during the first hours. Composite curves made from these records (Fig. 1) illustrate the mean alterations.

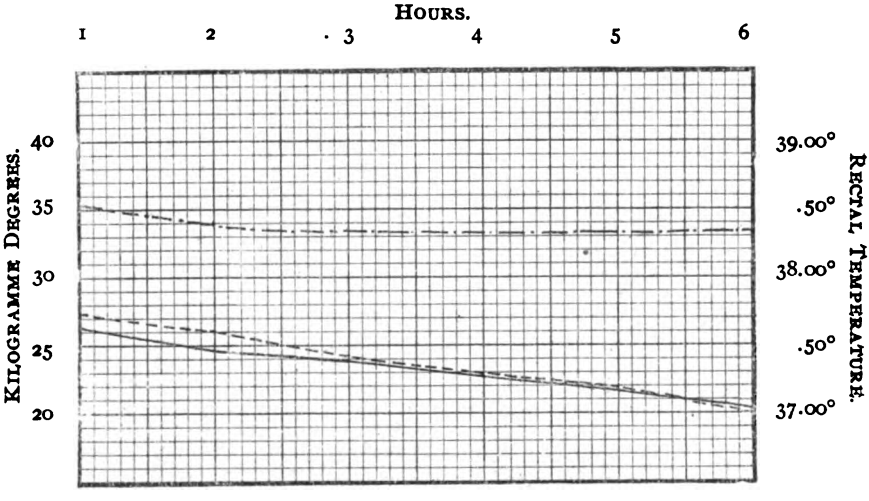

FIG. 1.

Heat production is recorded by a solid line (———).
Heat dissipation by a broken line (– – – –).
Rectal temperature by a broken and dotted line (— · — · —).

It will be observed that heat production gradually but slightly falls more rapidly during the first hours than the last; the curve of heat dissipation closely follows that of heat production, but keeps above it, except during the sixth hour, when it falls slightly below it, thus

[1] UNIVERSITY MEDICAL MAGAZINE, April, 1890.

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showing that during the first five hours more heat is lost than produced, with a consequent fall of bodily temperature, while during the sixth hour the reverse conditions are present. The temperature curve in the upper part of the figure gives the mean changes in rectal temperature.

An examination of the records of heat production in the experiments included in the present research, in which the spinal cord was cut, show that the variations in heat production from hour to hour are

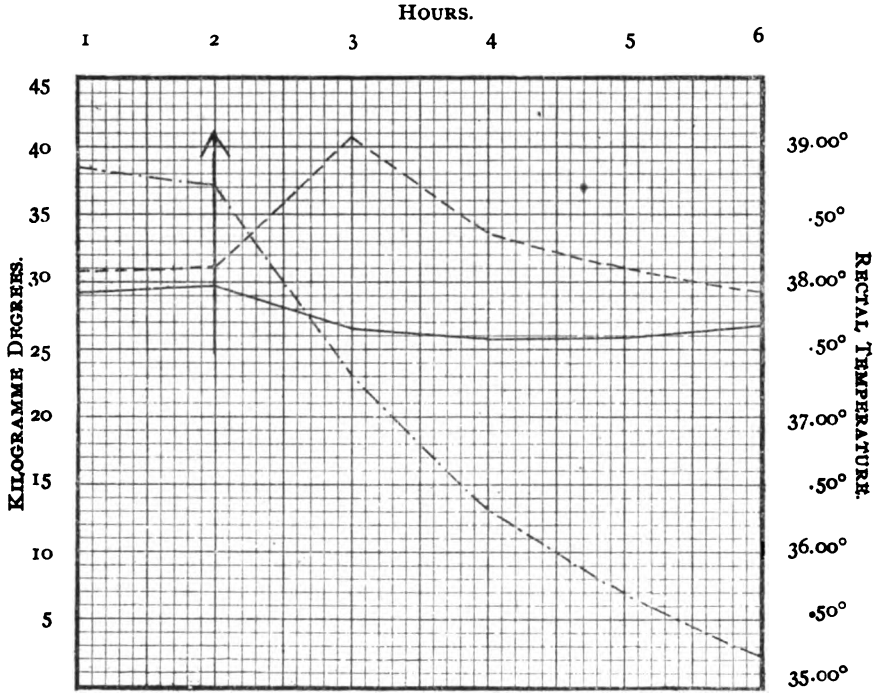

FIG. 2.

Heat production is recorded by a solid line (———).
Heat dissipation by a broken line (- - - -).
Rectal temperature by a broken and dotted line (— - — - —).

not, as a whole, dissimilar to those obtained from normal animals. In only three experiments (8, 9, 10), in which the animals were suffering more or less severely from shock, did any unusual departure occur from the normal. The average extreme fluctuations in heat production were 19.1, 33.7, 59.5, 31, 28.1, 35.1 and 43.3 per cent. respectively; or a mean average variation of 35.7 per cent.—really less than what was noted in normal animals.

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Heat dissipation after section of the cord was in excess of heat production, with but a single exception (Experiment 1).

Bodily temperature after the section suffered a rapid and usually a profound diminution, with the exception of the experiment just referred to.

Experiments 2, 3, 4, 5, 6 and 7 exhibit in their records the same general characters. In Experiment 1 the temperature rose immediately after the section, and continued to rise during the subsequent hours of observation. This rare result after section of the cord was owing essentially to diminished dissipation. In Experiments 8, 9 and 10, especially in the latter, the dogs were suffering considerably from shock, which undoubtedly materially affected the spinal heat mechanism in common with the other spinal centres. Should we eliminate these four experiments for the obvious reason of their abnormality, and then construct opposite curves of heat production, heat dissipation and bodily temperature from the records of the other six, the relations between these and those obtained in Fig. 1 will show at a glance the effects of the section on the heat phenomena.

Comparing first the curve of heat production, it will be noticed that the only appreciable differences occur during the second, fourth and fifth hours, and that these are practically without value. In normal animals, during the second hour, there were 1.763 heat units less produced than during the previous hour, while in these experiments 0.509 unit was produced in excess. Since in both instances the animals were unoperated upon the differences are without significance. After section of the cord, the curve of heat production is so like that obtained from normal animals that we are justified in the conclusion that section of the cord does not, on the whole, for some hours at least, appreciably affect the normal formation of heat.

When, however, we come to compare the curves of heat dissipation the differences are striking. In normal animals the curve of heat dissipation keeps a little above that of heat production, except during the sixth hour, and closely follows it; but after section of the cord this curve immediately rises and then gradually declines, yet keeps appreciably above the normal until the sixth hour, when it falls slightly below it, although continuing above the curve of heat production. In normal animals the curve of dissipation closely follows that of production and is doubtless dependent upon it for its peculiarities; the steady association of the curves seemingly represents an effort of the heat dissipating centres to conserve heat to compensate for the slightly diminished production, although it is not until the sixth hour that this effort is sufficiently powerful to effect a balance, and thus check the continued fall of bodily temperature. But after section of the cord the curve of

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dissipation is entirely dissimilar, thus indicating not dependence but absolute independence of the causes affecting them. The curve of dissipation, instead of closely following that of production, pursues an independent course and keeps so much above it that the bodily temperature is profoundly modified by the excessive loss of heat.

The temperature curve shows a considerable fall during the hour immediately after the section, then progressively less during each subsequent hour, giving a curve hyperbolic in character. In these experiments the mean maximum fall of temperature after the section was 3.49° C., while for the same interval in normal animals it was 0.08° C. The maximum declines were, respectively, 1.5°, 3.49°, 3.90°, 3 95°, 5.61° and 2.67° C. In experiments in which shock is well marked the diminution is more decided; thus, in Experiments 8, 9 and 10 the temperature fell 5 8°, 6.56°, and 6.97° C., respectively. The greater effect on temperature in cases of shock is due chiefly to diminished heat production.

The positive and practically uniform results of these six experiments render it apparent that the thermogenetic centres in the spinal cord are capable, independently of the higher centres, of producing the normal output of heat. Moreover, there seems to be no doubt that they constitute the general or automatic heat-producing centres. The chief reasons for this belief being: First, they are capable of producing the normal output of heat without the intervention of the centres in the medulla oblongata and higher. Second, they do not, after section from the higher centres, seem readily affected by changes in internal and external conditions. Even the profound fall of bodily temperature does not seem to affect them. In other words, they seem to possess the same fundamental characteristics as other of the so-called automatic nerve centres. Third, certain powerful pyrexial agents which I have found inefficient to increase heat production after section of the cord are capable of exerting their characteristic effects if the basal and medullary centres are left intact with those in the cord.

It yet remains to be determined what the relation is between these automatic thermogenetic centres of the cord and the portion located in the medulla oblongata, whether or not they are physiologically the same. That they are not physiologically identical is apparent in several facts: First, the spinal centres are capable alone of supplying the mean normal heat production, hence, the medullary centres would be superfluous as a part of the general heat-producing centres; second, certain pyrexial agents which are impotent after section of the cord are efficient if the medullary centres are intact. The medullary centres are, therefore, doubtless of the nature of accellerator heat centres. My experiments in connection with these will shortly be reported.

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The following conclusions seem justified from the foregoing study:

(1) That the general or automatic thermogenetic centres are located in the spinal cord.

(2) That the cruciate and Sylvian centres in the cerebral cortex are thermo-inhibitory.

(3) That accellerator thermogenetic centres are situated in the corpus striatum and medulla oblongata.

(4) That there are no sufficient reasons for believing in the existence of specific thermotaxic centres.

A CLINICAL LECTURE ON CHLOROSIS.[1]

By James Tyson, M.D.,

Professor of Clinical Medicine in the University of Pennsylvania.

The patient is a young woman 18 years old, who works in a bookbinding establishment. Her father and mother are both living and in good health, as are also her brothers and sisters. She herself was well up to the time of her present illness. Her special duty in the bindery has been to bronze the backs of books, and at this she has worked from ten to fifteen hours per day for the past two years. Last summer, however, she took a vacation, and it was during it, on the Fourth of July, that while running she was taken with vertigo. Then, apparently for the first time, her paleness attracted attention. She returned to her home in the city, and soon afterward, in the late summer or early autumn, applied to the hospital dispensary for treatment. Dr. Fussell, who was on duty in the dispensary, prescribed for her, and directed her to return. Feeling improved after taking the medicine she failed to report as directed, but soon realized that she was growing worse. Then she returned to the hospital, and was admitted to the wards about November 1.

Note now the peculiar faint greenish pallor of her face characteristic of her disease. More vivid is the paleness of the lips, contrasting strongly with the bright red of good health. Her other symptoms are not numerous, being mainly shortness of breath on exertion, a feeling of weakness and an indisposition to exertion. This girl has been overworked. Her nutrition is at fault. This defect manifests itself in an imperfection of the blood, which we will study more closely, since the superficial examination gives no clue to its real alteration. Fortunately

[1] Delivered at the Hospital of the University of Pennsylvania.

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we are now enabled to do this with a precision formerly impossible. With appropriate apparatus we can not only count the corpuscles, but we can also measure the hemoglobin, their most important constituent. More than one instrument has been devised for this purpose. I like best the Thoma-Zeiss cytometer for counting corpuscles and Fleischl's hemometer for measuring the hemoglobin, for the description of both of which I must refer you to the books on clinical diagnosis. I may mention, however, in passing, that cytometers bearing the name of Quinke, Mallassez, Hayem and Gowers have been devised by these observers, while Henocque has also constructed a hemoglobinometer and Bizzozero an instrument for both uses, corpuscle counting and color measuring.

The following are the directions published by Zeiss himself for the use of the Thoma instrument made by him.

This apparatus consists of three parts:

(1) A graduated pipette (melangeur) with india-rubber tubing and mouthpiece.

(2) A divided cell upon an oblong slip.

(3) A cover-glass with plane ground surfaces.

In order to count the red corpuscles of human blood the tip of any finger is cleaned with water and alcohol and then rubbed between the fingers of the other hand. A slight arterial hyperemia of the tip of the finger will arise, so that a fairly deep puncture with a lancet-like needle is sufficient to cause a drop of blood to appear. The point of the pipette is quickly placed into it and the blood sucked in up to division 1. Then the point of the pipette is cleaned from the blood sticking to it by a cloth kept ready for the purpose, and it is placed into a 3 per cent. filtered solution of common salt. This also is immedietely sucked up, so that the fluid enters into the spherical enlargement of the pipette. As soon as the sphere is filled up to Division 101 the sucking is interrupted and the mouthpiece of the india-rubber tube closed by putting the finger upon it. The contents of the spherical enlargement are now to be mixed by careful shaking. Thus in this sphere ninety nine parts by volume of salt solution are mixed with one part by volume of blood, or 100 parts by volume of the mixture contain one part by volume of blood, for the fluid in the capillary tube does not enter into the mixture.

If the blood is sucked in up to another division, say 0.5, instead of division 1, then with the same mode of proceeding another dilution is obtained, viz., 1 : 200.

Afterward, by blowing air into the india-rubber tubing, the salt solution may be removed from the capillary tube, and by constant shaking about one-half of the sphere is emptied. The next drop of the mixture is emptied upon the middle of the bottom of the divided

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cell, after the latter has been carefully cleansed. The cover-glass is immediately placed over it, and the apparatus is transferred to the horizontal stage of the microscope and left standing quietly for some minutes, so that the blood corpuscles may settle down.

It is necessary for a successful operation that the divided cell and cover-glass should be thoroughly cleaned. If this is done properly the Newtonian rings will be perceived along the edge of the cover-glass as far as it rests upon the wall of the cell, and this indicates that the cover-glass lies well upon it. At the same time it must be seen that no fluid enters between the cover-glass and the wall of the cell. On the contrary, the drop of blood should be placed in the center of the cell, and spread thence to fill up the space between the cover-glass and the bottom of the cell for some square millimeters.

Special care should be taken to keep the pipette in clean condition. Every time after having been used, it should be rinsed with (1) the diluting fluid, (2) distilled water, (3) absolute alcohol, and (4) ether. If dust or coagulated blood should still stick to the pipette, it should be removed with strong acids or alkalies by repeated rinsings, assisted, if necessary, by a bristle.

The corpuscles may be counted by any object glass magnifying about 300 diameters.

Every fifth square of each horizontal and vertical row of squares is crossed by an additional line to facilitate the counting. Each square occupies an area of $\frac{1}{400}$ sq. mm., and above each square there is a space of $\frac{1}{4000}$ c. mm., since the distance of the bottom of the cell from the lower surface of the cover-glass amounts exactly to $\frac{1}{10}$ mm. The corpuscles which first were suspended in this space have now settled and are lying on the bottom of the cell, where they may be counted. The corpuscles lying upon the lines should be counted, but, of course, only once. Thus, all corpuscles lying on the horizontal lines should be counted in the squares above them, and all corpuscles lying on the vertical lines should be counted in the squares to the right of them.

The calculation is as follows: If by a dilution of the blood in the proportion of 1 : a in n squares z corpuscles have been counted, then 1 c. mm. of undiluted blood will contain:

$$4000 \times \frac{a \times z}{n} \text{ blood corpuscles.}$$

If, for example, by a dilution of the blood in the proportion 1 : 100, as we supposed above, in 200 squares altogether 2570 red blood corpuscles were found, then the calculation will give for 1 c. mm. of blood—

$$\frac{4000 \times 100}{200} \times 2570 = 5,140,000 \text{ blood corpuscles.}$$

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For counting the white blood corpuscles a pipette should be used which allows a dilution in the proportion of 1 : 10, and instead of the salt solution an aqueous ⅓ per cent. solution of acetic acid should be chosen for diluting. The red corpuscles will disappear in this fluid, but the white ones will remain and are easily counted. The method of calculation is the same as that given above for the red blood corpuscles.

Studies by Thoma and others, with a view to determining possible errors with the instrument whose use has just been described, go to show the constant errors to be insignificant, less than 1 per cent., while the accidental and variable errors, which are unavoidable, diminish with the number of corpuscles counted. Thus, by counting 200 corpuscles they amount to 5 per cent. of the total result.

1,250	corpuscles	amount to	2	per cent.	of	the	total.
5,000	"	"	1	"	"	"	"
20,000	"	"	½	"	"	"	"

Recently, in 1885, Professor Blix, of Upsala, Sweden, suggested the use of centrifugal force in estimating the volume of red blood corpuscles, and Dr. S. G. Heden has devised an instrument called the *hematokrit*, for this purpose. Dr. Judson Daland has further improved this instrument so that after the blood, diluted with an equal bulk of a 2.5 per cent. solution of bichromate of potash,[1] has received the requisite amount of rotation, the percentage *volume* of red corpuscles may be read off from the cylindrical tubes in which the blood is placed, and from this deduced the *number* in each cubic millimeter by simply adding six ciphers to the reading.

Dr. Daland[2] regards the hematokrit as both more speedy and more accurate than the cytometer, basing his conclusions on a very large number of comparative observations. He used also a great variety of fluids for dilution, and concluded that the above solution of bichromate of potash is, for many reasons, the best. The hematokrit also enables one to measure the volume of colorless blood corpuscles, but no method has as yet been devised for calculating their number.

In the patient before you the blood count was made with the Thoma-Zeiss apparatus, and there were found upward of three millionsof red discs, with no disproportionately large number of white corpuscles. Now, the number of red discs per cubic millimeter in health is put down at five millions for men and four and a half millions for women. But a very considerable range must be admitted, and while three and a half

[1] This solution is also an excellent one for diluting the corpuscles when counting them with the Thoma-Zeiss counter, and is the one commonly in use at the Hospital of the University of Pennsylvania.

[2] A Volumetric Study of the Red and White Corpuscles of Human Blood in Health and Disease.—UNIVERSITY MEDICAL MAGAZINE, November, 1891.

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millions of corpuscles is less than normal it cannot be asserted that this number is not compatible with perfect health, and the amount of hemoglobin may still be sufficient.

We must go further, therefore, in our study of the blood and measure the quantity of hemoglobin. This has been done by Fleischl's hemoglobinometer with the astounding result of 15 per cent. as compared with a normal 100 per cent., although this maximum is rarely reached, 90 per cent. being the more usual.

Herein, then, we have the solution to our problem and the appearance of the patient. With a moderate reduction of the number of corpuscles is associated an enormous falling off in the amount of hemoglobin. From this it appears, therefore, that the individual hemoglobin value of each corpuscle is greatly diminished. Beyond this there is nothing abnormal to note. The proportion of white corpuscles to red discs is normal. There is no undue smallness or the opposite in the size of the discs, no undue irregularity of shape. But in this reduction in the amount of coloring matter we have one of the essential conditions of an anemia which may be defined as any condition of the blood characterized by an undue diminution in the total bulk, its albumen, its hemoglobin, or of the latter two.

We have, therefore, before us, a case of anemia. What variety is it? The symptoms of pallor, vertigo, weakness, and shortness of breath on exertion are common to all varieties. So are palpitation and irregular heart action, and even anemic murmurs. There are, however, some special features in this case which have already been pointed out. There is a peculiarity in the pallor of our patient. It is a yellowish-green, and the patient is a young girl, overworked, not emaciated, but fairly nourished. Above all, there is a marked reduction in the hemoglobin without a corresponding reduction in the corpuscles. Now, these are the essential features of chlorosis, or green sickness, one of the varieties of essential anemia.

There is no enlargement of the spleen, or of the lymphatic glands. There are no essential anatomical changes in this disease. Many years ago Professor Virchow pointed out an imperfect development of the circulatory system as more or less characteristic; that the heart was small; the large blood vessels small and thin walled. Such a state of affairs, must, however, be accidental, and there is no definite morbid anatomy to the disease. Rarely there is compensatory hypertrophy of the left ventricle. We must, therefore, look upon the condition as consisting in a physiological failure on the part of the cytogenetic apparatus to supply the proper proportion of hemoglobin to the blood corpuscles. A further study of the blood discovers a marked diminution in the iron, a constituent of the hemoglobin, resulting in a lighter hue of the blood when seen *en masse*.

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The corpuscles may be somewhat altered and even fantastically irregular in shape, constituting what is known as *poikilocytosis*, or they may be larger than in health, when they are known as *megalocytes*. But these alterations are not common, even in slight degree. More frequent is an undue reduction in size of the corpuscles, a *microcytosis*. They may also be appreciably paler in hue than is typical, and the blood *en masse* may appear paler. The proportion of leucocytes may be slightly lowered.

Gruber found increased alkalescence of the blood, but von Jaksch found it diminished in three cases. Whence it may be concluded that none of these features are essential or diagnostic.

To sum up then, chlorosis is a disease characterized by a defective formation of red blood cells, resulting in a deficient amount of hemoglobin, without, as a rule, any marked reduction in the number of the red discs.

The *course* of a case of chlorosis is limited by the treatment, for by judicious management a few months to a year will generally establish a cure, for the prognosis is the most favorable of that of all the anemias.

The *diagnosis* is based chiefly upon the age and sex of the patient, the peculiar greenish, pale color of the mucous membranes and the diminished hemoglobin. Ulcer of the stomach is sometimes simulated by chlorosis because of epigastric pain which occasionally accompanies it, and some little study is sometimes necessary to complete a diagnosis. The anemia which is sometimes very marked in gastric ulcer is not accompanied with such a disproportionate reduction of hemoglobin as compared with the corpuscular reduction, and they are more apt to go *pari passu*. The history of the case will also aid in the separation.

There are few things more satisfactory in therapeutics than the treatment of a properly managed case of chlorosis. Time, however, is required, and too rapid a cure must not be promised. The remedy par excellence is iron, and it does not matter what preparation of iron is used. At the present day Blaud's pill of carbonate of iron, made by double decomposition between carbonate of potassium and sulphate of iron, is very popular. Half an ounce of each are combined and made into ninety-six pills so that each pill contains five grains. Of these from one to two are given at a dose. Reduced iron is also a valuable preparation in doses of one to three grains. Arsenic is a valuable adjunct. It should be given in ascending doses. Fowler's solution is the most convenient preparation, but arsenious acid is also a good form. The latter is now made up in combination with Blaud's pill, one-fortieth of a grain in each pill. This is a small dose. If Fowler's solution is used the dose may be commenced at a single minim and gradually increased until the physiological effect results, when the dose is again reduced.

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Rest in bed for a time, associated with massage and an abundance of easily assimilable food, in a word, the "rest cure," is an important auxiliary, if it can be availed of, to hasten a cure, which at best is not rapid, while a sojourn at the seaside when convalescence is fully established, is a fitting close and crowning measure of treatment.

THE CLINICAL VALUE OF REPEATED CAREFUL CORRECTION OF MANIFEST REFRACTIVE ERROR IN PLASTIC IRITIS.[1]

By Charles A. Oliver, A.M., M.D.,

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Since seeing the paper of Dr. John Green "On a Transient Myopia Occurring in Connection with Iritis," read before this Society in 1887, which was followed a year later by Dr. Mittendorf's communication on "Symptomatic Myopia," to be found in the Transactions of the same Society, the writer has been so impressed with the importance of the subject that he has taken advantage of his abundant clinical opportunities to make routine and periodic study of the refractive condition of every case possible of inflammation of the iris that has fallen under his care, hoping thereby to furnish some data upon this vexed question. Fortunately, personally, the subject has in his hands gone far beyond the theoretical points then at issue, and has resolved itself into a most valuable clinical procedure in his every-day treatment of this disease. To him it has been an attempt, at least, to formulate some definite guide and to obtain some certain rules for correct and appropriate dosage of both local and general measures in this most important branch of ocular therapeutics; an attempt which ordinarily is merely gauged by rough objective signs and the patient's feelings; an attempt that he hopes may add its mite to help perfect this now one of the most neglected portions of ophthalmology.

In this work the plan of study was not only limited to the ordinary subjective method of lens testing, but was accomplished by some of the more certain of the various objective plans, such as retinoscopy, ophthalmoscopy (both by the direct and indirect methods), the fundus image test, and lastly, by ophthalmometry as a method of control; Thomson's ametrometer and the chromatic aberration test also being employed at times.

[1] Read before the American Ophthalmological Society, July, 1892, and reported in full in the Annales d'Oculistique.

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The results thus far obtained, which are more or less expressive of about forty suitable cases that have been carefully followed to resolution,[1] although necessarily tentative in some particulars, are here given without any further detail than offering a concise citation of two illustrative, partially theoretical, examples in order that an outline plan of the method of procedure pursued may be understood, a resumé of the five years' work being embodied in a brief series of observations which are followed by a number of conclusions that have been deemed of sufficient certainty to be offered at this time.

CASE I.—On the 7th of January, 1889, T. H. R., aged 47 years, the wife of a traveling salesman, and the mother of two healthy children, came for a left sided plastic iritis. As stated by her physician, she was inoculated by her husband in September of 1888, the initial lesion being followed in a short time by epitrochlear and post-cervical enlargement, buccal and faucal erythema and mucous patches, papular syphilide, slight alopecia, and quite a large subperiosteal swelling in the left frontal region. When first seen there was a pronounced plastic iritis in the left eye of nine days' duration, there being an irregularly contracted pupil, many fine posterior synechiæ, with a marked deposition of pigment on Descemet's membrane; the iris stroma being thickened and dulled in tint. There was no involvement of the right eye, which had its uncorrected vision of two-thirds brought to normal by the employment of a + C. o. 50 D. ax. 90°. The vision of the inflamed eye, which was reduced to one-tenth, could not be perceptibly increased by any lens combination.

By the bi-daily use of drachm masses of mercurial ointment, and the free application of an eight-grain solution of cocaine and atropine every third hour for two days' time, the iris was freed from its tags of adhesion to the capsule of the lens, allowing the pupil to become nearly seven millimetres diameter in all meridians. At this visit vision was brought from one-tenth to two-fifths of normal by the use of a — S. 2. D. ⌒ — C. o. 75 D. ax. 180°, the uncorrected artificial focussing point obtained by a S. 4. D., being situated at about fifteen centimetres. Vision of the fellow eye was raised from two-thirds to normal by the previous Ah correction.

Two days later, coincident with much betterment of the objective conditions, uncorrected vision of the left eye rose to nearly two-thirds of normal; this acuity being increased to full two-thirds sight by the employment of — S. o. 75 D. ⌒ — C. o. 75 D. ax. 180°. The right eye still remained uninvolved. At this time the atropine and cocaine, although kept to the same strengths, were reduced in frequency to three times a day.

[1] Quite a number of data were also gained and made use of from patients who escaped from observation before completion of the case.

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Three days after this, the sixteenth day of the disease, vision still remained at two-thirds by the use of a — S. o. 50 D. ⌒ — C. o. 50D. ax. 180°, the eye being much quieter.

In two days' time the minus cylinder was alone necessary to bring the vision of the inflamed organ from two-thirds to nearly full acuity. The instillation of the cocaine and atropine was ordered to be used but once a day, and although the eye was much better, the papules subsided and the secondary node on the os frontalis had disappeared, the ointment was continued.

On the following day a plus meridian of one-quarter diopter strength, at right angles to that corrected by the negative cylinder, appeared, causing the manifest refraction to assume that of mixed astigmatism.

Eight days later, under the same treatment, the minus cylinder was lost, and vision was brought from not quite full acuity to normal by a + C. o. 50 D. ax. 90° alone. The local treatment was now reduced to atropine every other night, the use of the mercury being faithfully persisted in.

Eight days after the above visit, during which she failed to report, a violent plastic iritis burst out in the right eye, causing severe ciliary neuralgia. The patient having been previously warned, immediately instilled quite a large amount of atropine into the right conjunctival sac, with the result of almost thoroughly dilating the pupil. Vision in this eye, which was now reduced to one-half, was brought to nearly normal by — S. 1. D. ⌒ — C. o. 75 D. ax. 180°.

In three days' time, in spite of the liberal use of cocaine and atropine, continuance of mercurial inunction and free leeching, a Descemetitis appeared, lowering vision to an incorrectible one-fourth. Hot stupes were now added to the treatment, resulting in a quick subsidence of the severity of the symptoms and a restoration of vision from two-thirds of normal to nearly full acuity by the use of — C. o. 50 D. ax. 180°, the uncorrected artificial focussing-point being but little inside of twenty-five centimetres.

Seven days later a fresh exacerbation of iritis in the left eye again lowered its vision to one-tenth of normal, which could be brought to full acuity by a — S. 1. D. ⌒ — C. o. 50 D. ax. 180°; the atropine having been instilled four times daily for two days.

Three days after this visit, while both eyes were quiet and no ocular or circum-orbital pain of any kind existed, vision in the right eye, which was now two-thirds of normal, was brought to almost full acuity by the use of a + C. o. 50 D. ax. 90° (the lens originally used when O. S. was primarily inflamed), while that of the left eye, which equaled one-half, took a mixed astigmatism correction of — C. o. 50 D. ax. 180° ⌒ + C. o. 25 D. ax. 90° to bring it to normal.

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As the original correction that had been required in the right eye had been reached, and as all of the other symptoms seemed to be in abeyance, the atropine was stopped in the right eye for experiment's sake, and was reduced to but once a day in the left eye. In ten days' time, under the modified use of the atropine and the continuance of the alterative, both uncorrected visions rose to almost normal, that of the right eye still retaining one-half diopter convex cylinder at ninety degrees to make the letters clearer, while the mixed astigmatism in the left eye became Ahm in variety; the new lens combination necessary to give normal acuity reading — C. o. 25 D. ax. 180° ⌒ + C. o. 50 D ax. 90°.

Six days later, vision in each eye was the same ($\frac{5}{5}$), and each ametropia equaled + C. o. 50 D. ax. 90°. Atropine was stopped and the mercury was gradually lessened until in three weeks' time, when her eyes were perfectly quiet, she was again referred to her family physician. The patient, who has been seen within a short time, asserts that she has not had any return of her eye symptoms, and that her present general health is seemingly good.

CASE II.—On the 6th of June, 1891, the writer was consulted by a well-known scientific man, aged 35 years, who, while pursuing a most exacting literary life, complained of a recurrence of asthenopia, which was promptly relieved after careful estimation under the full influence of atropine, by the employment of the following cylindrical combination:

O. D. + C. o. 50 D. ax. 90° ⌒ — C. o. 25 D. ax. 180°
O. S. + C. o. 25 D. ax. 90° ⌒ — C. o. 50 D. ax. 180°

each eye obtaining a vision of $\frac{5}{5}$ with its appropriate correction, accompanied by an esophoria of two P. D. at five metres and muscle balance at thirty-five centimetres distance.

On the 2d of September of the same year he returned with a beginning left-sided plastic iritis of recent syphilitic origin.

A series of quickly repeated instillations of cocaine and atropine soon caused the pupil to become dilated almost *ad maximum*, except at one point up where a minute tag of adhesion to the anterior capsule caused the pupil to assume a heart shape. Vision, which had fallen with his correction to two-thirds of normal, was brought to full acuity by the following combination: — S. o. 25 D. ⌒ — C. o. 75 D. ax. 180°. Careful study with an ophthalmometer of Javal and Schiötz at this time failed to place this increase in the cornea.

By the prompt employment of mercurial ointment, general and local rest, and the instillation of the one-twentieth of a grain of sulphate of atropia three times daily, the synechia gave way in forty hours, leaving a perfectly round pupil, though the eye required a

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minus one-half diopter spherical lens over that of the first visit making — S. o. 75 D. ⌒ — C. o. 75 D. ax. 180°, to bring the distant vision to normal, and to secure the best point of near vision at twenty-five centimetres with an additional S. 4. D. There was no pain, the media were clear, and there were no gross fundus changes of any character.

One week later, after faithfully continuing the necessary treatment, the vision of the affected eye was found for the first time to be normal with the original correction, the patient voluntarily stating that he had noticed a sudden improvement just after the instillation of the atropia the day before. The drug was now used night and morning only, while the alterative was scrupulously persisted in.

Two weeks after the first appearance of the "mistiness," which had been the first and only subjective symptom noticed by the patient, vision remained normal with his correcting lenses, and all external symptoms of ocular inflammation had gone.

While carefully and assiduously watching for any objective and subjective signs of refractive change, the atropia was gradually reduced day by day, and the general alterative lessened in amount and frequency, and finally replaced by small doses of corrosive sublimate, until in five weeks' time from the beginning of the attack the atropine was discontinued.

Four weeks later, the eyes being perfectly quiet, although daily employed, were, for experiment, carefully re-estimated for correcting lenses while under the liberal employment of atropine. The lenses and the positions of the principal meridians of astigmatism were found unchanged from those of the original correction, this good result continuing unaltered to the present writing.

Observations.

(1) In nearly every case of iritis, even after full pupillary dilatation, especially in the plastic form of the disease, there was an ever changeable, though relative increase of the refractive power, the amount of which in the majority of cases could be readily determined by careful, repeated and systematic measurement.[1]

(2) In every case of plastic iritis that could be properly studied, there were similar reversals of the principal astigmatic angles and meridians so commonly seen during the passage of ordinary hypermetropia into myopia; these temporary changes from the one gross form of ametropia (H.) to the other (M.), expressing themselves both subjec-

[1] A similar, though, of course, less marked, example of this condition, during almost any form of strong or persistent mydriatic correction of ametropia, especially in young hypermetropes, can be seen in any practice where, although the pupillary areas seem to be dilated *ad maximum*, yet the findings of one day are found to be weaker than those of the morrow, and where repeated trials are compulsory before astigmatic angles can be properly chosen.

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tively and objectively in every case that could be steadily watched and persistently followed by the following routine of condition: H + Ah, Ah, Ahm, Amh, Am, and M + Am.

(3) In cases of plastic iritis occurring in young highly hypermetropic eyes, especially where corrections had never been worn or were originally too weak, the refractive changes seemed in most instances never to reach those recognized as myopia; the decrease of the hypermetropia appearing to vacillate some one to three diopters less than the total hypermetropia, and this being accompanied by varying expressions of astigmatism.

(4) In quite a number of cases of plastic iritis that could be properly studied by the ophthalmometer there appeared minor though at times plainly appreciable degrees of curious lessenings and increases of the corneal curvatures in the same case at different periods of the disease.

(5) In nearly every case of plastic iritis that could be carefully and repeatedly studied by the ophthalmometer (even after any technical and mechanical error in the method had been expunged), the corneal changes seemed to register much less in proportion to those found in the same cases by other objective methods and the subjective plan of lens testing; thus indirectly showing the undoubted presence of lenticular disturbance.

(6) In some cases of commencing iritis, especially in hypermetropic eyes, there seemed to be a most active clonic spasm of the ciliary muscle, causing rapid increases and decreases of lenticular form, so pronounced, in fact, that it became at times impossible to obtain any definite refractive result. Moreover, in this class of cases, persistent pupillary contraction often took place the moment any important curative measure was lessened or temporarily suspended.

(7) In many cases of the plastic form of the disease, where there were points of ciliary tenderness of no matter how trivial a nature, especially when associated with irregularity of pupil form, the astigmatic changes seemed to preponderate and remain more or less fixed for long periods of time.

(8) Experimental research by the use of repeated instillations of strong solutions of eserine in such cases, showed marked refractive increases and all manner of change in the principal astigmatic curves; these peculiarities expressing themselves not only subjectively by the patients' assertions with trial lenses, but evidencing themselves by retinoscopic and other objective methods.

(9) In every case of iritis where there was much visible pigment deposition, or where the crypts of the iris were thickened and infiltrated, and the pupil, although apparently equally enlarged in all meridians, refused to dilate to any more than to one-half or two-

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thirds that of full size, the manifest refractive error, where adequately obtainable, seemed to become fixed at one point until objective betterment became apparent.

(10) In many cases of the plastic form of the disease, even during apparent full pupillary dilatation, where the weaker solutions of strong drugs, such as atropia and daturia were inadequate to alter the manifest refractive error, therapeutical combinations such as cocaine and atropine, with the employment of the artificial leech, or resource to stronger drugs, such as duboisia and hyoscyamine, seemed in several instances to soon unmask some hidden refractive error—markedly that of astigmatism—and to permit speedier cure of the disease.

Conclusions.

(I) In nearly every case of iritis, especially of the plastic forms, there is a period, even after full pupillary dilatation has been seemingly artificially obtained, during which, owing to the persistence of inflammatory changes in the uveal tract, as so well expressed by the clinical evidences of ciliary spasm, etc., graduated instillations of mydriatics should be employed; the duration and gravity of this period being most accurately measured and determined by the systematic and repeated estimation of the varying manifest errors of refraction.

(II) While it is true that during this stage in nearly every case of iritis, ophthalmometric—or rather, keratometric study—seems to show at times that there are bizarre and curious changes of corneal curvature,[1] yet it must be conceded from the additional findings of other optometric methods, that the bulk of the ametropic change in such cases is due to the perversion of lens action from what Koller terms "spastic accommodation" as the result of ciliary irritation and inflammation.[2]

(III) In nearly every case of iritis the duration of this stage can be promptly shortened by the judicious and ready use of some quick and powerful intraocular muscle paralyzant; the character of the necessary form of the drug and its amount at the time in every instance being judged by the amount of manifest refractive error found at the time.

(IV) In some few such cases of iritis, however, during the acme of the attacks, especially if the case be pronounced in type and stubborn in character, the higher grades of the manifest refraction error seem to obstinately persist with but little variation in amount, and to defy for a long time reasonable local and general measures.

[1] It is the intention of the writer to make more extended study in this direction, reserving his present unpublished results for another communicati. n.

[2] Based upon clinical experience and reasoning alone, without the shadow of evidence from experimental research, the writer here hazards the thought that impediment in lymph stream flow or even lymph formation itself may be one of the factors in the production of the ametropic condition.

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(V) In some few cases of incipient iritis, where clonic spasm of the ciliary muscle seems to present itself, or pupillary contraction repeatedly persists, local muscle paralysis, as evidenced by a relative decrease of refractive error, is often quickly obtainable by the prompt and more energetic employment of some of the more powerful and appropriate local and general remedies.

(VI) Consequently, the careful systematic estimation of the manifest error of refraction found during attacks of iritis is of great value in the rational and scientific treatment of this disease, offering itself as not only a means by which the general prognosis of the affection can be made more certain from time to time during its progress, but permitting itself to serve as a measure or guide, as it were, by which the attacks may be more properly and more understandingly treated, and their duration shortened by the judicious and intelligent use of appropriate drugs, thus giving better opportunity for lessening the chances of harmful and permanent after changes to one of the most important and yet one of the most susceptible organs of the ocular apparatus.

STAPHYLORRHAPHY FOR ACQUIRED DEFECT OF PALATE, WITH A REPORT OF FOUR CASES.

By L. J. Hammond, M.D.,

In charge of the Beacon Throat and Ear Dispensary, and Assistant Aural Surgeon, University of Pennsylvania.

Plastic operation on the palate for acquired defects must of necessity be limited to those cases where there is a surface of healthy tissue large enough to produce a flap sufficient to take the place of that which has been destroyed. The class of cases, therefore, which will be found most amenable to surgical treatment, are those where only a portion of the hard palate and its mucous covering have been destroyed, as shown in Fig. 1, or where there has been partial loss of the soft palate, as shown in Fig. 3. When the destruction is more extensive, involving as it frequently does both sides of the soft palate, also the alveoli in conjunction with the hard palate, little can be accomplished by surgical intervention. In these cases we are compelled to depend on mechanical appliances, which often serve to lessen the patient's discomfort.

The majority of these conditions are the result of syphilis, though a few cases, especially of soft palate perforation, may be of traumatic origin, one such having come under the writer's observa-

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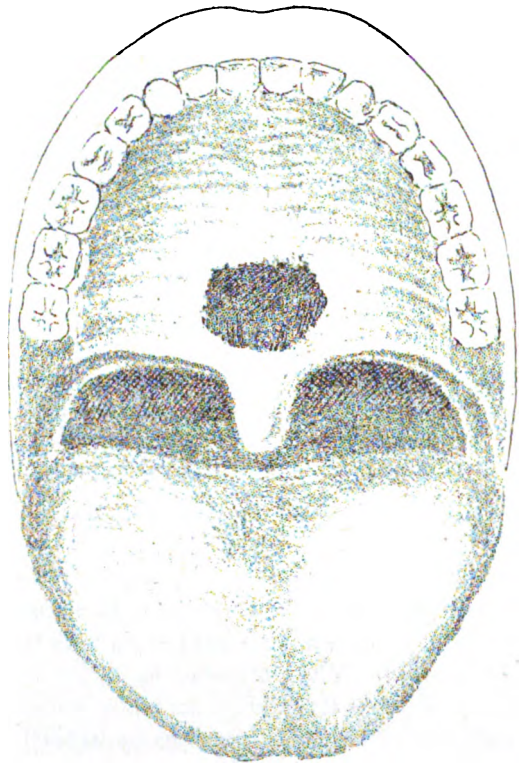
tion. A boy, 6 years of age, while at play fell and forced the sharp end of a large tin whistle through the soft palate, which from neglect on the part of the parents never closed.

The four cases here reported were adults. Three of them (males) were operated upon for destruction confined to the central portion of hard palate (Fig. 1). The fourth (female) for destruction of a portion of left soft palate (Fig. 3). The ages were 27, 33, 38, 42 years respectively. The length of time from initial lesion until the destructive process developed was in the order in which the ages appear—6, 8,

FIG. 1.



11 and 15 years. The length of time that the destruction had existed when they came under observation was six months, two years, two and a half years and three years. The bone in each case had all been thrown off, and the edges of the perforations healed when they presented themselves, except the case of six months' duration, where there was remaining some of the detached necrotic bone which had not separated.

There was no history of treatment in any of the three males (central perforations) longer than the primary lesion existed, while

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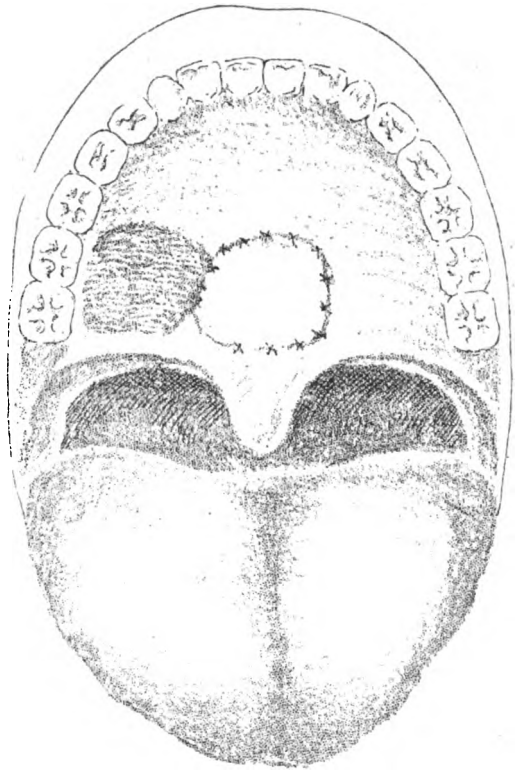
the female (soft palate destruction) gave a history of treatment in a hospital for three months, and again during the second year for about one month. In appearance the cases involving the hard palate so closely resembled each other as to size and location of perforation that they will be classed together; they differed, however, in the extent of necrosis in the nasal cavities, cases two and three having lost vomer, inferior and middle turbinates in addition to portion of hard palate, case one having lost, in addition to bony

FIG. 2.



palate, the vomer and inferior turbinate of right side. The case of soft palate destruction had lost vomer and inferior turbinates, while the hard palate remained normal. The edges of the perforations presented smooth surfaces, curled upon themselves, forming thickened fibrous bands in the floor of the nose. There were also seen a few small cicatrices over the soft palate and its pillars, and some retraction of the roof of the mouth, which was most noted in the third case of hard palate involvement. In this case there was decided arching; there was also some arching in the second case. In the female, the case of soft palate

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destruction, there was, in addition to thickening and curling of the edge toward the median line, partial loss of the anterior half arch and binding down of the posterior one to the wall of the pharynx. The uvula remained, but was cicatricial. As the cases presented themselves they were put on specific treatment for periods varying from one to three months. The nasal cavities and mouth were cleansed with an alkaline solution, which was followed by an application in the nose three times per week of glycerole of iodine and iodide of potassium. This was necessary to get rid of the crust formation, so excessive and fetid in these cases, which it did by being continued during the period that the internal medication was given. Both the internal and local treatment were continued until there was no longer fear of the necrotic condition extending.

Two of the cases had been wearing plates (second and third), while the more recent one (first) had contented himself with filling the perforation with a pledget of cotton, which was pushed up through the opening and renewed several times daily. This method, while it served as a means of closing the communication between the mouth and nose, also tended to enlarge the perforation.

The patient with soft palate involvement had never been able to obtain any mechanical appliance that could be worn with advantage. While these appliances are of value in preventing the passage of food into the nasal cavities and also in lessening the nasal intonation so characteristic of these cases, they are, nevertheless, sources of great annoyance to patients, as it is necessary to remove them after each meal in order that the particles of food that are sure to work under them during mastication can be cleaned away.

Before operating, the nasal cavities and mouth were cleansed with a warm saturated boric acid solution. The patients were seated in a chair, with the head resting against an air cushion, the mouth held open with a Mear's mouth-gag and tongue depressor combined. The surface from which the flap was to be removed and the edges of the perforations having been anesthetized with an 8 per cent. solution of cocaine (no other anesthetic being used), the dissection of the flap was begun at the edges of perforation and extended outward toward the alveoli, care being taken not to approach the margin of the gum too closely, in order to prevent wounding the palatine artery.

So intimately associated is the mucous membrane and periosteum that it is impossible to separate them until the edge of the alveoli is reached, where there is more tendency to separation, owing to a larger development of the glands. The flap, therefore, consists of muco-periosteum, which makes it very strong. The dissection was made partly with a small bistoury, curved at right angle to the handle, and with the

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handle of a scalpel. The free end of the flap being held by means of a long pair of forceps, the opposite edges were pared by making a half-circular incision with a small straight scalpel, and the muco-periosteum entirely freed so as to facilitate the approximation of the edges and also to aid in the introduction of the sutures. Silver sutures were used in the first case, but were found to be very irritating from the scratching of the tongue; they are also likely to tear through the flap while twisting them. Silk, which was used in the other three cases, was much more

FIG. 3.

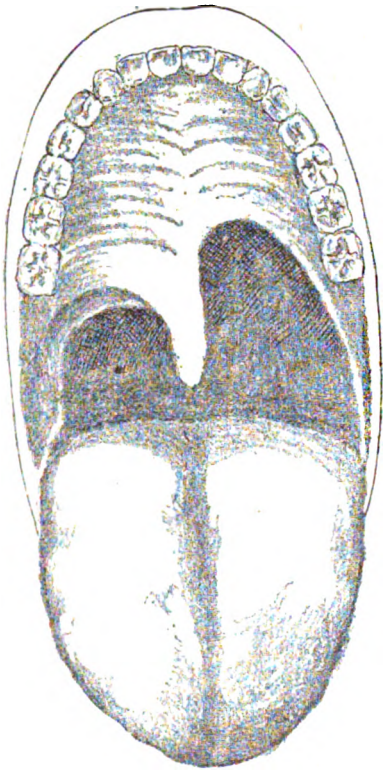

FIG. 4.

readily tied by means of a sliding knot, which held the sutures in position until a second knot was tied. The sutures were long, so that they could be handled outside the mouth. The needle that was found to answer best was a small (one-half inch) round one, curved at the point. If a triangular-shaped needle, or one flattened on the edges be used, the tissues are likely to be torn or rather cut through. Then with a small needle held in a holder the suturing was much more readily accomplished than with the tubular needle, which was tried, and which is recommended in cleft palate suturing by some surgeons. While the

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dissection of the flap in the central perforations and also the suturing was comparatively simple though tedious, that of the soft palate was much more difficult. The difficulty was, however, greatly lessened by having the patient's assistance in being able to move the head into whatever position was desired.

The cocaine anesthesia was entirely sufficient to render the dissections painless, and also lessened the hemorrhage, which was very troublesome, though readily controlled by torsion and pressure in all the cases except one, where the larger branch of the palatine was cut and had to be ligatured. The flap surfaces were left to granulate, which they did within four weeks. The mouth and nasal cavities were daily cleansed with a warm solution of boric acid (grs. xv to f℥j) and a thin film of absorbent cotton placed in each nostril. The patients were kept as quiet as possible in order to prevent any increase of the muscular action, which might tend to cause separation of the flap. This tendency was, of course, greater in the soft palate case, where the powerful action of both the tensor and levator palati muscles of the opposite sides tended constantly to separate the edges. The tension was further lessened by dividing the adherent posterior arch of the same side, which removed the action of the palato-pharyngei. Union was perfect in the three hard palate cases, and also in the soft palate case except at the most distal end of the flap, where it was sutured to the arch. Here there was some sloughing, though not sufficient to interfere with the tension of the primary flap. The nasal intonation was entirely removed in the three central cases and greatly modified in the soft palate case. The sutures were removed on the tenth day, the diet up to this time consisting of liquid food. Figs. 3 and 4 show the flaps sutured in position.

SOME WHO HAVE SUFFERED FOR PATHOLOGY'S SAKE.[1]

By Henry W. Cattell, A.M., M.D.,

Demonstrator of Gross Morbid Anatomy at the University of Pennsylvania; Prosector to the American Anthropometric Society; Pathologist to the Presbyterian Hospital, etc.

It is not my intention to-night to dwell long upon those persons who, in the performance of their pathological duties, have lost either life or limb, but to briefly refer to some who while performing experimental inoculations upon themselves or the lower animals have been

[1] An address delivered before the Stillé Medical Society of the University of Pennsylvania on November 3, 1892.

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willing to risk their lives, their health and their happiness in order that science might be advanced.

While I, personally, have never had occasion to inoculate a single animal, or to perform vivisection in any manner, I cannot help but feel that the array of cases where human inoculation has been practiced, a few of which I shall present, is a complete refutal of all arguments brought forward by those who are opposed to experimentation upon the lower animals. At a meeting of the Convention of the American Humane Society, held October 26, 27, 1892, Mrs. Caroline Earle White delivered an address against vivisection. While she admitted the right to kill animals for food, provided it be done quickly and humanely, she emphatically denied that any important discovery has ever been made by the practice of vivisection. I would reply, how is it possible that men of learning and of mature judgment are willing to perform experiments which may endanger their lives or health unless they think that our store of knowledge may thus be increased?

I shall cite you in this connection the example of Robert Cory[1] who, knowing the fact that the lower animals are not subject to syphilis, was willing to contract that most dreaded disease in order that he might show to the countless ages to come the danger of taking even the clear lymph of vaccine for purposes of future vaccination from a syphilitic child. The experiment which he performed upon himself has called the attention of the medical profession to this important subject, and has caused the establishment of hundreds of cow vaccine farms throughout the world. How much better it would have been if he could have performed these experiments upon one of the lower animals, instead of perhaps sacrificing his future usefulness to the dreaded ravages of tertiary syphilis.

The subject of immunity from disease, which is now receiving the attention of the ablest scholars and writers of this country and abroad, is based upon human and animal inoculation, in order that it may be put on as firm a foundation as is the science of antiseptic surgery at the present time. Deprive mankind of the right to inoculate in one state or country and the doors of another land, though distant, will be thrown open, and will become the goal which the true seeker after knowledge in all its forms will strive to reach. The benefits thus derived from experiments upon the lower animals will be freely given to the relief of mankind, whether they be vivisectionists in theory or practice or anti-vivisectionists in deed or spirit.

I have had in the course of my life three friends whose deaths can be directly or indirectly traced to their great interest in pathology. Dr. H. B. Taylor had finished a post-mortem, and, entrusting the sewing

[1] Keating, Vol. I, p. 747.

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up of the body to a medical student, received a stab in the wrist which gave rise to a serious wound, from which he died some months later on. Another case was one in which a physician had started upon a career with everything in the future looking exceedingly bright. He had been chosen resident physician at Blockley, and while there, both with Dr. William Osler and myself, had been very regular in his attendance at the post-mortem room. Having been chosen to the Insane Department, he had more leisure to carry out his pathological studies, and we had taken up a course of reading in German. We had come to the interesting subject of pneumonia. It was at the time when the pneumococcus of Fränkel was receiving much attention, and my friend Dr. Charles Walter—a very thorough student—did not deem it sufficient to merely study the subject from the book standpoint, but decided to make cultures of the diplococcus himself. One evening we waited for him at my office in vain, and wondered, as he was such a punctual man, that he did not at least send us word of his being unable to keep his engagement. The next day I learned that he had been, after exposure to cold, attacked with the disease germs he was cultivating. His death took place a few days later. The lamented death of Dr. Henry F. Formad was no doubt hastened by the post-mortem wound which he received last December, though his kidneys were in a poor condition to withstand any extra strain which might be made upon them. Of the great number of persons whom I have known and who have suffered from wounds or diseases gotten in the post-mortem rooms in this city three examples will suffice. Our own honored Provost of the University, who has always shown such marked zeal in the performance of his duty, and such an intense desire to master the minutest detail, relates that he dates an attack of typhus fever from the time at which he assisted at a post-mortem of a patient dead from that disease. A resident physician at Blockley who received a post mortem wound suffered from innumerable abscesses for several years, his life often seeming to hang by a thread, but is now, I am happy to state, hale and hearty. Another resident physician in the same hospital lost the little finger from a post-mortem wound; he was a fine violinist and this interfered seriously with his playing.

The history of medicine tells us of the achievements of Jenner in vaccination, of Pasteur in rabies, swine plague and fowl cholera, of Koch in cholera and tuberculosis, of the writings of Kröner, Magnant, Bonahard, Tizzoni, Buchner, Fligge, Brieger, Waasarman, Nissen, Gelderblom, Thompson, Crivelli, Salmon, Robertson, Neudörfer, Janson, Schmit, Peyraud, Bonehard, Behrens, Foà, di Mattei, Roux, de Blusi, Maguire, Klein, Hamer and Körösi on preventive inoculation, of

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the work of Fränkel and the Klemperer brothers in pneumonia, of the labors of Sternberg with vaccine in cows, of the experiments of Fréire in Brazil and Carmona in Mexico in yellow fever; of the inoculation trials of Ferran in Spain in cholera; of the mass of material brought forward by Cantani, Nicolarer and Kitassato on tetanus; of the laboratory researches of Pollander and Greenfeld, of England, and Toussant, of France, on anthrax; of the discovery of a pathogenic microörganism in leprosy by Hanson; by Neisser in gonorrhea; by Shütz and Löffler in glanders; and by Pfeiffer in influenza; of the contributions of Klebs, Löffler and Welch on diphtheria; of the especial workers in England on the soluble products obtained from pure cultures of microorganisms—J. Burdon Sanderson, Sidney Martin, Brunton and McFadyean, R. W. Philip, Hankin, Ruffer, Crookshank and Herroun, William Hunter, Cartwright Wood, William Aitken, G. Sims Woodhead; of a host of earnest workers in our own country, such as Prudden, Shakespeare, Billings, Simon, Jacobi, Abbott, Dixon, Gibbes, Vaughan, Councilman, Osler and Guitéras, and of which hundreds of others might be added to the list if we had time to tell about them and their writings.

Three laborers in the domain of scarlet fever and cholera will illustrate the work that is going on in this field, which is now by far the most active one in the domain of medicine. The Japanese as a race are supposed by many to be immune against scarlet fever. Knowing this fact, A. S. Ashmead inoculated several Japanese in order that he might obtain an anti-vaccine from their lymph which, by inoculation, would prevent scarlatina in the Caucasians. His researches are still being carried on in this country, and we hope that they will be crowned with success.[1]

Haffkine[2] inoculated first himself and then seven others with Pfeiffer's Nos. 1 and 2 anti-cholera vaccine. It is his hope that by these inoculations a person can be rendered immune from cholera in the course of six days. E. H. Hankin,[3] one of those recently inoculated by Haffkine, graphically describes his experience. His temperature in the first inoculation never reached more than 100 degrees Fahrenheit, though he suffered from headache, malaise, loss of appetite and general lassitude. The edematous swelling at the point of injection developed with startling rapidity, but as the vibrio of cholera does not produce pus, but little attention was paid to this fact. A nodule at the point of injection remained at the time of writing. After the first inoculation there appears to be a temporary diminution in the power of

[1] Medical Record, 1891, Vol. XL, p. 270.
[2] Munch. Med. Woch., Aug. 9, 1892.
[3] Medical and Surgical Reporter, Oct. 8, 1892, copied from British Medical Journal.

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resisting the entry of the cholera microbes; therefore, in epidemics of cholera great care should be exercised in making the inoculations.

Time has permitted me but to name the work that has been carried on by a few in the warfare against diseases of bacteriological origin by means of inoculation. Here it is literally fighting a man, or rather a microbe, with its own weapons, for the very bacillus which is causing the harm may have called into existence a substance which, if properly used, may contribute to the microörganism's own destruction.

George H. Sternberg[1] truly says in a late address: "Recent experimental evidence has been obtained which gives us reason to believe that in a number of infectious diseases, at least, the toxic bacterial products which give rise to the morbid phenomena characterizing these diseases may be neutralized in the infected individuals by the administration of anti-toxines obtained from the blood of immune animals.

MEMORANDA.

EASY CASTRATION, WITH THE REPORT OF A CASE.

TEXT-BOOKS, systems of medicine and surgery, cyclopedias of this, that and the other branch of the healing art, are indispensable assistants to the every-day worker in the practice of medicine; but the individual case must be managed by the individual doctor in the particular way indicated, and his knowledge of what is known and written about the disease must be used as a basis from which to make deductions and reach conclusions that he can apply to the case in hand.

The successful application of established principles, and the intelligent deviation from them at the right time mark the man, and he who is willing to assume the responsibility of an infraction of the rules because it suits his case to do so may develop a new and perhaps useful basis of treatment which others can apply.

Medical and surgical history abounds in instances of remedies and operations being brought to the notice of the profession, to be frowned down and ignored as useless, which further trial at a later day (and perhaps under different conditions) proved to be quite practicable and valuable.

Anesthetics and asepsis have made possible much in surgery that was out of consideration before their advent. Now we have "otomys"

[1] Boston Medical and Surgical Journal, June 16, 1892.

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in endless variety, attacking every organ in the anatomy (the heart excepted to prove the rule); symphysiotomy, the last, being an old procedure revived to take its place as the fad of the day, but to take the place of Cæsarean section and craniotomy, more dangerous fads.

Neoplasms of one sort or another, and abscesses of tubercular or gonorrheal origin, make the removal of one or both testicles a common operation.

The surgeons and authors of to-day agree in adopting and advising a method of operating which has been accepted without question for many years, other plans not being referred to, or, if alluded to, condemned in a few brief words.

That the long incision from the external ring to the base of the scrotum can be improved upon I hope to be able to show, and when it is necessary to remove both glands it can be done through one short incision instead of the two long ones, besides offering the additional advantage of better drainage and equally good exposure of the cord at the external ring.

The patient upon whom I first demonstrated the advantages of this short incision was in the wards of St. Francis Hospital, and in the service of Dr. Cornelius Sheppard, who kindly asked me to see the case and operate.

P. B., aged about 56, had for many years an old and tight stricture of the urethra in the membranous portion. Has had it dilated frequently. General condition bad. He was pale and anemic. Appetite was poor, and he has had frequent rigors and other evidences of sepsis.

Examination.—Stricture impermeable, the finest filiform bougie passing but five inches. Perineum honeycombed with foul sinuses discharging pus and urine, very little urine having passed by urethra for three months. Both testicles enlarged, tender and boggy, left one having been incised and now discharging freely.

External urethrotomy and double castration recommended and accepted.

Operation.—Patient shaved, scrubbed, purified and etherized. Placed in lithotomy position, medium incision, as for stone, down to and through urethra to bladder. Sound then passed freely. Sinuses curetted, and bladder and sinuses thoroughly irrigated with antiseptic fluid and boiled water. Iodoform gauze drainage in bladder and packing in sinuses.

Without changing the position of the patient an incision about two and a half inches long was made through the rhaphe of the base of the scrotum down to the left testicle. It was an inch from the upper end of the perineal incision to the lower end of the scrotal one.

Through this wound the adhesions could be readily broken up and

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the gland enucleated and turned out. The ease with which the soft and yielding tissues of the scrotum could now be retracted and the cord exposed as it emerged from the external abdominal ring was an agreeable surprise.

It was the work of a moment to clamp and cut the cord and ligate the vessels, then the septum was incised and the right testicle was as quickly and easily amputated.

Clipping off some infiltrated tissue about the sinus from the left testicle, the incision was drained and sutured and the whole dressed with iodoform gauze.

This patient did not do well from the start, sepsis became more marked, uremia developed, and he died May 4, 1891, ten days after the operation.

Autopsy.—Scrotal wound quite closed with small cicatrix, owing to contraction of tissues. Perineal wound and sinuses not in good condition. Kidneys nearly destroyed and full of pus, evidently unequal to further excretion of urine.

The notable and striking features of this operation were the ease with which the tissues could be retracted and the cords exposed where it was desirable to ligate them, and after contraction, the very small opening which had served for the removal of both glands.

The advantages over the method of to-day are: First, smaller wound required; second, better position to retain dressing; third, sinuses, if any, will not be near base of scrotum, and bad tissue can be more easily removed; fourth, greater ease in enucleating; fifth, easy access to cord at external ring; sixth, less danger to hernia, if present; seventh, less annoyance from cicatrix with hernia when a truss must be worn; eighth, better location of cicatrix for all purposes; ninth, smaller and more contracted cicatrix; tenth, single wound for removal of both testicles; eleventh, drainage from the most dependent point, doing away with the usual pocket left by the operation now popular; twelfth, less likelihood of infiltration of connective tissue if secondary hemorrhage occurs.

HORACE G. WETHERILL, M D.

TRENTON, N. J.

A CASE OF PAROXYSMAL TACHYCARDIA OF REFLEX ORIGIN.

THE writer wishes to report this case as showing conclusively how an irritation in one of the abdominal viscera may be the only apparent factor in the production of this remarkable disturbance of the heart. The patient, whose history is given below, has been under observation during the last three years.

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On the appearance of Dr. Wood's paper on "Cardiac Nerve Storms," in the March, 1891, number of the UNIVERSITY MEDICAL MAGAZINE, the writer, after carefully reading over the article, came to the conclusion that this case was one of essential paroxysmal tachycardia, a condition supposed to be a pure functional neurosis of the heart; but on following up the subsequent history of this case it became evident that the attacks of heart hurry were in all probability reflex in their nature. The patient, after having two severe attacks of renal colic and passing a few calculi per urethra, has ceased entirely to suffer from them, the apparent source of irritation having disappeared; therefore this patient could be no longer considered as an example of a case of essential tachycardia. The history of the case is as follows:

A. R., male, 64 years of age, married, and the father of three healthy children; he is of medium height, nervous temperament, and by occupation a farmer. His father died at the age of 75 of enlargement of the heart, and the mother of old age at 64. He has one brother living, another having died of pneumonia at an early age. Of three sisters, one, the eldest, has been of late years subject to periodical attacks of palpitation of the heart; but she is now passing through her climacteric. The patient himself has always enjoyed good health, with the exception of a severe attack of typhoid fever when in his twentieth year, some muscular rheumatism at various times in his life, and these repeated spells of palpitation from which he has suffered for many years.

About thirty-three years ago, after running for quite a distance and becoming greatly exhausted, he was seized with his first attack of palpitation of the heart, which lasted for fully an hour. Since that period they have recurred off and on at irregular intervals, sometimes one or two weeks apart, but more frequently two or three times a day, coming on without any apparent cause, or sometimes brought about by violent exercise, such as lifting heavy weights or jumping from a height, as, for example, from a fence to the ground. The remedies taken with a view of relieving this distressing condition have been of little or no avail to him. The rapid action of the heart would frequently cease as suddenly as it had come on. The writer has had several times the opportunity to observe him when suffering from his most severe paroxysms. The prominent symptoms were a rapid running pulse from 180 to 210, thready in character and sometimes impossible to count, cold extremities, pinched features, hands tightly clasped over the precordia, constant moaning, and a marked expression of anguish over the countenance. He would complain at times of blindness, or cry out (as he expressed it) in fear of impending death. Some of the most severe paroxysms ended by vomiting or diarrhea. These recurring

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attacks of heart hurry continued until the fall of 1891, when he suffered from two severe attacks of renal colic; shortly after the last one he passed per urethra three calculi, the largest about the size of a small grain of corn. Since then, now more than a year, he has been entirely free from these attacks of palpitation, which had troubled him during the past thirty years. He expresses himself as feeling now perfectly well, and during the past summer and fall he has been able to do his share of the work on the farm, and his heart appears no longer to trouble him.

The writer examined him very carefully a few days ago, and could detect nothing abnormal about the sounds of the heart; his pulse was regular, of full volume and beating 68 to the minute; in every respect he had the appearance of being in good health.

This has been, undoubtedly, a case of reflex tachycardia, but what the mechanism of this peculiar condition was it would be impossible to say, since the true nature of this disease still remains unsettled. It would also be just as difficult to explain how this enormous rapidity of the heart is brought about, as this organ has besides the pneumogastric or inhibitory nerve and the accelerators, coming from the spinal cord, both independent intracardiac inhibitory and accelerator centres.

According to Dr. Wood, if cardiac nerve storms be studied under their clinical aspects, they may be divided into two classes, sensory and motor. In the former, pain is the most prominent symptom, but as this is invariably associated with organic lesions we find it present in the muscular degenerations of this organ, in atheromatous conditions of the coronary arteries, sclerotic changes at the mouth of the aorta, angina pectoris, and in the cardiac trophic disturbance accompanying locomotor ataxia; on the other hand, in what are termed motor nerve storms, we find movement the most prominent symptom, and as tachycardia or rapid heart may be a normal condition with some persons distinction must be drawn between those cases in which the pulse rate is persistently high and those in whom it is only so at certain fixed intervals. To the latter class of cases the term paroxysmal tachycardia has been applied. This condition is brought about by a variety of causes. Therefore, we must still make a further distinction between them:

(1) Those cases due to paralysis of the pneumogastric of central origin when produced by the presence of a clot or tumor in the brain, and peripheral when due to the presence of some mediastinal growth.

(2) Those cases of reflex origin induced by the irritation of a sensory nerve, especially when the source of irritation lies within the pelvic or abdominal cavity; for example, those caused by the presence of renal or biliary calculi, ovarian or uterine disease, a floating kidney, and rectal or prostatic inflammation.

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(3) Those in whom no organic changes or a probable source of irritation can be detected. To this class the term essential paroxysmal tachycardia has been applied. The attacks partake of the nature of a true neurosis or functional disturbance of the heart, allied in all respects to essential epilepsy or hysteria. The definition given by Wood of this disease is "that of a recurrent paroxysmal neurosis in which attacks of excessively rapid heart action come on without obvious immediate or predisposing cause, and without pronounced pain or excessive cardiac distress, the pulse rising to 160 and upward, the sounds of the heart remaining normal, and it being frequently possible to arrest the attacks by drinking a glass of cold water and certain other procedures of apparently trifling import, the disease having apparently no tendency to shorten life or to develop organic disease, and being only compatible with great mental and physical activity."

But the pathology and etiology of this rather rare condition of the heart still remain obscure. French writers have described, under the term of essential paroxysmal tachycardia, cases in which decided changes in the arteries have taken place, where the attacks of heart hurry were followed by diminution in the quantity of urine excreted, a decided elevation of temperature, and in some cases a rapid dilatation of the heart, followed by death, showing necessarily the existence of grave organic changes in the muscles of this organ.

D. T. LAINÉ, M.D.

MEDIA, PA.

A CASE OF LABOR COMPLICATED BY RIGIDITY OF THE OS UTERI AND ADHERENT PLACENTA.

I WAS called to see Mrs. R., aged 24 years, a primipara well developed, at 8 P.M., November 30, 1892. She had slight pains off and on all day. On examination I found the os beginning to dilate, and everything apparently in a normal condition. I gave a few directions and informed the attendants that I would return in about four hours. On my return I found the os about one-third dilated and extremely rigid; it felt to the finger as if a "constriction band" of cicatricial tissue surrounded the whole os. The bag of waters had ruptured between my visits, which tended to make matters worse. Above the constriction band the tissues were very soft and dilatable. The pains were frequent and severe, and the patient was getting very much excited and hard to control. I waited half an hour, and though the pains continued very severe the os remained in the same condition. I attempted dilatation with the index finger of the right hand, but the patient said the pain was unbearable, and she could scarcely be held

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in the bed. Sending for chloroform I placed a few drops at a time on a folded handkerchief and had the patient inhale it when she felt the pains coming on. As soon as she was partly under the influence of the chloroform, with the index finger of the right hand I proceeded to dilate the os, sweeping the finger all around it during a pain and using considerable force. The result was most gratifying; in about twenty minutes the os was fully dilated, the head came through without further trouble, and in half an hour the patient was delivered of a well-developed male child.

After waiting fifteen minutes I attempted to remove the placenta by compression with one hand on the abdomen over the fundus of the uterus, and with the other making traction on the cord; though the uterus contracted firmly, the placenta would not come away. After using various external manipulations, and finding that even with normal uterine contractions, the placenta would not come away, I gave the patient a few whiffs of chloroform, not enough to produce unconsciousness, and introduced my hand into the uterus. The placenta was found firmly adherent at the fundus, and had literally to be torn off with my finger. I attempted to reach the attachment and remove it without carrying my whole hand inside the uterus, but found it impossible.

The mother and child did well; the temperature reached 99° on the fourth day, which was the highest point. I used no injections or antiseptic washes of any kind during the after-treatment or before removing the placenta. I simply had *clean hands*, which is, I think, the true method of obstetric antisepsis, or rather asepsis. To those who are always hunting for the elusive microbe where it does not exist, and who are antiseptico-maniacs, the above may seem like a very reckless statement; but after trying it for seven years in general practice I have no cause for regrets. I have never yet had a death from child-birth or abortion, nor have I been troubled with sepsis. The only suspicious case of sepsis that I have had I attributed to injections of mercuric chloride, 1:4000, which I used myself in a case where I thought I would be extremely clean. I stopped it at once and used boiled water, and the patient was well in a few days. I am a thorough believer in antiseptic midwifery, but not in meddlesome midwifery. I am always careful to have perfectly clean hands and instruments, and then I handle my obstetrical cases as little as possible. In fact, after the woman is delivered I never touch the parts again so long as she continues to do well. If I have any injections to use I use boiled water. I do not believe in allowing an ignorant nurse with unclean hands and foul syringe to inject doubtful antiseptic solutions into the vagina of the parturient woman, as is advocated and practiced by a number of good authorities.

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One of the greatest objections which I see to the method of dilating a rigid os advocated by some authorities, is the introduction of the whole hand into the vagina, which is a very difficult and painful matter in a primipara unless the patient is anesthetized. Furthermore, it is doubtful whether one could get pressure enough to dilate a very rigid os with the hand folded in the form of a cone, inserting the fingers within the os and trying to open the hand; whereas, with the index or with the index and middle fingers sweeping them around the os, one can exert almost as much force as desired up to the point of rupturing the cervix. I have been using the above method for dilating rigid os for the past four or five years, and I have yet to see a case where it has failed, or wherein it has done harm. It is a very simple method, and has thus far answered the purpose perfectly.

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CHANCRE OF THE TONGUE.

THE following instance may be of interest to the readers of the UNIVERSITY MEDICAL MAGAZINE. There appeared at my clinic, some weeks ago, a man who gave the history of having been treated by four physicians during the nine or ten weeks preceding for an ulcer on the dorsum of his tongue.

The patient, an intelligent man, was entirely ignorant and innocent of the cause and nature of the lesion, and he stated that no physician had given him any diagnosis of the condition nor benefited him by treatment, except relief from pain by the local application of cocaine.

By exclusion I arrived at the diagnosis of chancre, innocently acquired, kept irritated by impaction against the teeth and ingestion of food. The only secondary symptom present was ulceration of the left vocal cord, resulting in almost complete aphonia. According to the teachings of Professor H. C. Wood, in all cases of doubtful diagnosis the therapeutic test should be employed, and if sixty grains of the iodide of potassium per day fail to produce iodism, for all practical purposes, the person may be considered to be a syphilitic. Jullien states: "The existence of syphilis contributes powerfully to producing tolerance of the iodide. Experience proves, in fact, that in persons free from this poison the toxic phenomena of iodism are much more to be dreaded. In some manner an antidote may be dangerous or even fatal when the organism is not under the influence of the poison which it is intended to combat."

These statements convey an important practical lesson in the diagnosis of obscure conditions suspected to be of syphilitic origin. I therefore gave the patient a saturated solution of iodide of potassium,

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to be taken in ascending doses. When he reported again he claimed to have taken 160 grains a day without iodism. He was then given a saturated solution of five ounces of the iodide, with instructions to increase rapidly until the point of toleration was reached, and then to report. In one week the patient reported having taken in the two preceding days 650 grains each day, with no other symptom than slight salivation. The whole quantity of the five ounces had been taken, and no change in the appearance of the voice or in the condition of the ulcer. Am I right in my diagnosis, and is not this a very unusual tolerance of iodide of potassium?

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CLINICAL DEPARTMENT.

PHILADELPHIA ORTHOPEDIC HOSPITAL AND INFIRMARY FOR NERVOUS DISEASES.

[Service of DR. THOMAS G. MORTON.]

FIFTEEN DEFORMITIES TREATED FROM JUNE 1 TO DECEMBER 1, 1892.

TRAUMATIC TALIPES CALCANEUS.

CASE I.—E. M., male, aged 5 years, reported to clinic with right foot in marked calcaneus position (foot at angle of 45° to leg), due to a lacerated wound of tendo-Achillis, soft parts and evidently of the astragalus. Accident was caused by a mowing machine one year ago; there had been suppuration and sloughing. Admitted to house. The very tense flexor tendons of the ankle were severed by open incisions, one being made on each side of anterior tibial artery, extending up and away from that vessel. Each tendon now divided, and foot brought at right angle to leg by forcible manipulation. A spindle-shaped section of connective tissue was now dissected out deep into the space between divided ends of tendo-Achillis, allowing an inch gain by shortening here. Catgut sutures closed all three incisions; antiseptic dressing and right-angled tin foot splint applied. Wounds healed by first intention. Foot in good position. Massage and stretching of stiffened ankle was practiced daily after twenty-fifth day; the boy was encouraged to walk

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which he did well on sole of foot with but little limp. It was found unnecessary to order a brace so good a position was obtained; he was kept in hospital for a month, to have the massage continued. Returned to clinic two weeks later walking well. This is the first case of traumatic talipes calcaneus seen here. It was an extremely disabling deformity, but was, by timely operation and after-treatment, quite easily cured.

ASYMMETRY FROM OLD PYEMIC PROCESS OF RIGHT SIDE OF BODY.

CASE II.—H. W., male, white, aged 6½ years. Father had pyemia, and mother was inoculated in dressing his wounds, she in turn developing a pyemic condition while carrying child (the patient). Three weeks after birth abscesses developed on the right side of body as stated. Child recovered slowly, but has been stunted in growth ever since, especially in right leg, which is smaller, more contracted and shortened (one and three-quarter inches) as compared with left. There were no sinuses, but head of right femur was partially dislocated upon dorsum ilii. There was marked dorsal lateral curvature of spine toward shortened side, due to effort to keep erect in walking.

Treatment.—Consisted in elevating right foot by a sole two inches higher on the right shoe, thus overcoming the asymmetry and consequent compensatory curve of vertebral column, no jacket for the latter being necessary, as spine was brought in line by correcting the lengths of limbs.

Braces of all kinds are dispensed with in children when possible. It is surprising to see the number of useless apparatuses seen on some of the new cases presented at orthopedic clinics here.

DOUBLE CONGENITAL TALIPES EQUINO-VARUS WITH DISLOCATION OF ASTRAGALI.

CASE III.—W. T., aged 20 months, born with both feet turned in, and with inner border of each sole at right angles to inside of corresponding leg. Astragali are prominent and partially dislocated upon dorsal aspect of feet, and offer in each foot the resistance to attempted correction of the deformities. The child's strength not being very good, it was decided to perform tarsectomy upon one foot at a time.

October 6, 1892, under ether, a two-inch curved incision was made directly on dorsum over astragalus of left foot under antiseptic precautions, the blood being held out of foot by Esmarch's method. The astragalus was easily dissected out, tendo-Achillis cut, and foot easily brought into proper position without shortening. No drainage; six gut sutures, antiseptic dressing, and tin right-angled foot splint completed the operation, child making a good recovery from ether, and wound healing by first intention. The patient suffered absolutely no pain

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except at time of dressing wound; was taken out driving in nine days; never any fever; club-foot shoe with brace to above knee was ordered later to take the place of tin splint.

Foot is perfectly straight and not shortened. Child was now taken home for a few days, and returning November 3, developed a tonsillitis which lasted a few days, with no complications; but diphtheria being about, an operation, of exactly the same character as the first was not performed on right foot until December 1, 1892; this also did nicely, and both feet are now in normal position. Braces will be worn for some months, and treatment will be aided now by the child beginning to walk. Recurrence is rare with the precaution taken of wearing braces continually night and day, until the feet are moulded in proper position while walking.

CONTRACTION OF TENDO-ACHILLIS FOLLOWING INFANTILE PALSY.

CASE IV.—E. F., female, aged 10 years, came to clinic walking with right foot in marked equinus position, and "hammer-toed." Right leg was slightly atrophied below knee and all tendons tense. From the constrained position pain had recently developed in right knee and ankle, especially when walking.

September 15, 1892, under ether, tenotomy of tendo-Achillis with all the flexor and extensor tendons at base of toes permitted foot to be easily brought at right angles, in which position it was held by Macewen's right-angled wooden foot splint. In seven days splint removed. Can place entire sole of foot easily upon floor. Massage and stretching now practiced daily; patient walking with but little limp and in such perfect position that a new stiff shoe was all sufficient for support. Pain in knee and ankle entirely disappeared. Discharged in nine days, returning to clinic two weeks later with perfect result. Timely operation cured what in a few years could hardly have been so nicely corrected on account of the anchylosis already beginning.

TIC DOULOUREUX OF RIGHT SIDE IN MAN AGED 72; EXCISION OF SECOND DIVISION OF FIFTH NERVE; IMPROVEMENT.

CASE V.—J. McM., aged 72, admitted June 30, 1892, with history of being a sufferer from trigeminal neuralgia for years. Had run through with "the list of drugs" with but little relief, and finally, five years ago, Dr. D. Hayes Agnew trephined the antrum, removing second division of fifth far back. Pain was now relieved for a time, but soon began to recur, being terrible off and on ever since. Can give no cause for oncoming attacks, which becoming so severe for past few months Dr. Morton was consulted, advising operation over the antrum, where there was an extremely sensitive spot. There was a

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depression here and an old scar of former operation. Accordingly, under ether, a two inch incision was made parallel to lower margin of orbit, and from the inner end the incision was extended down along border of nose two and one-half inches; connective tissure curetted away and antrum trephined. A pair of hemostatic forceps were now introduced, and one and one fourth inches of regenerated nerve extending far back into antrum were withdrawn. Pain was more severe for a few days after operation, then became much better than before, the patient being discharged in seven days; wound healed by first intention.

It is interesting here to note the entire regeneration of about normal-sized second division of fifth (examined microscopically) with the rapid healing of so deep a wound in so old a person.

[Service of DR. H. E. GOODMAN.]

TRAUMATIC PARAPLEGIA; IMPROVEMENT.

CASE I.—C. E., male, aged 32, working in coal mines at Highland, Pa., June 1, 1892, was caught while in stooping position by a large mass of coal which he had undermined. The heavy mass struck him in dorsal spine, producing instant paraplegia. Was carried home, and a week later taken to a hospital, where he remained three weeks. Says movement of limbs was completely gone, and there were some irregular areas of anesthesia on lower limbs. Bed sore in sacral region developed two weeks after accident, which was unhealed when admitted here, August 1, 1892. The sensation is now normal, and while he had to be catheterized for first week after accident, now two months later has incontinence, the bowels being only moved by enemata. There is quite marked general muscular wasting, no alteration of sensation to pain, touch or temperature. There is a prominence at lower part of spinal column, which is due to the twelfth dorsal spine, with its attached lamina tilted up, but it is immovable. The feet are in equinus position, due to pressure of bed clothing evidently, and partly to beginning contractions. The only muscles of lower limbs patient can move are the adductors and biceps of both thighs. Knee-jerk absent. Muscles of lower extremities respond to strong faradism. Treatment by rest on back, with massage, faradism and head extension. Eight days later, while up in chair, head suspension was practiced twice daily. Aside from a slight cystitis, which lasted but a short time, he made an uninterrupted recovery, being able to walk about with slight assistance. Furnished with a "corset" for support of spine, he was discharged October 6, 1892. The case, treated conservatively (although there was fracture of lamina with displacement), had made great progress here. His freedom in walking is increasing from day to day.

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CONGENITAL TALIPES EQUINO-VARUS; OPERATION; BRACE; CURE.

CASE II.—J. B., female, aged 13 years, left foot turned in at right angle to leg; there is an enlarged accessory bursa on outer side of foot over cuboid bone, caused by pressure in walking. The plantar fascia is tense and contracted, as are the tendo-Achillis, anterior and posterior tibials. All of these were cut subcutaneously, and the foot then not being brought around by pressure, on account of deformity of tarsal bones, a curved incision, three inches long, was made from above down and back over the cuboid bone, which was removed, thus permitting foot to be brought straight. Foot thus kept in normal position, catgut sutures and antiseptic dressing being applied, was put up in right-angled splint. Wound healed by first intention. Twenty-two days after operation massage and stretching were begun, club-foot shoe and brace being applied, to be worn continuously. Was discharged in forty-nine days; walking, with but little limp; no shortening of foot. Reported to clinic, three months later, having grown very much and walking flat on sole of foot, even without brace.

CONGENITAL TALIPES EQUINO-VARUS; OPERATION; BRACE; CURE.

CASE III.—B. B., colored, male, aged 11 years, right foot turned in at right angle similar to Case II, but the tarsal bones did not seem so rigidly anchylosed together, as was proven by being able to stretch foot in proper position after tenotomy of tendo-Achillis, anterior and posterior tibials and plantar fascia subcutaneously. Foot was then put in right-angled splint, and a week later his shoe and brace were applied; massage and stretching of foot practiced daily; kept up for two months, when he was sent out with instructions to wear brace for a year at least. The remarkably good results in these two cases are well shown by plaster casts made before and after operation, now in collection of the hospital. Dr. Goodman always does tenotomy first of all on tight tendons in such cases, only practicing tarsectomy when foot cannot be stretched into fair position. This is illustrated in the two foregoing cases, both similarly deformed, yet the bone was removed in but one case.

CLEFT PALATE; OPERATION.

CASE IV.—B. F., aged 14; congenital cleft palate involving soft parts only and directly in median line. No hare lip. Operation was first directed to enucleation of a mucous polyp, which was successfully removed under local anesthetic action of cocaine by wire ecraseur. This polyp obstructed his nasal breathing, as it lay on posterior surface of left inferior turbinated bone. A slight nasal catarrh was treated in the meantime, and twelve days later (June 22, 1892), under the local

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anesthesia of a 4 per cent. solution of cocaine, staphylorrhaphy was performed as follows: patient in sitting posture and head held by an assistant, who controlled mouth gag (which was removed at intervals to allow of expectoration). Edges were pared with little hemorrhage and but little pain for the patient. He became faint once from sight of the blood but soon regained his strength, the operation being proceeded with as follows: a silver wire guy was passed outside and behind tensor palati muscles by curved perineum needles, wire being then caught and drawn through by dissecting forceps, the ends then drawn together and shotted. This approximated the flaps, doing away with lateral incision to relieve tension. The five silver wire sutures were now passed and shotted without trouble, only a small opening, size of a large pin-head, remaining above. Very little bleeding or pain, with the advantage of controlling the patient during and after operation are deemed the advantages of local anesthesia.

Result, December 9, 1892: perfect union between the edges excepting the small opening above, which is itself gradually closing in, and all this in spite of the fact that the wound became infected from the nasal catarrh on about the fourth day, causing edges to separate for a part of their extent for two or three days. Boy articulates more distinctly already than before the operation.

OSTEOMYELITIS; RAPID IMPROVEMENT BY COMPRESSION.

CASE V.—E. G. C., aged 15, a strong and healthy boy up to July 8, 1892, when in running fell and struck left knee. Next day the knee began to swell and was stiff for a week, though continued to walk about the house on it. In ten days was going about as usual, but the left knee soon began to swell again and in three weeks from time of injury a small "boil" broke below left patella, discharging but little and closing again in a few days. Now had more pain in knee and a dull ache up left thigh, accompanying which was swelling perceptible more to inner aspect and lower third of femur, which has gone on increasing in size, with but little pain or fever until on admission, October 27, 1892, when fibrous anchylosis of left knee existed, with leg at right angles to thigh. Marked anterior convexity and thickening of lower half of left femur, the circumference of thigh four inches above patella being fourteen and a half inches. Patient anemic; has no pain. Temperature slightly above normal. No evidence of pus. Treatment: application of Stromeyer splint, thus straightening the deformity daily. Later extension of ten pounds was added. To reduce the swelling, compression of femoral artery (according to the recent method of Bier) was done every other day by the Esmarch tube, applied around upper one-third of left thigh, first having driven blood out of limb with firmly applied

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bandage from toes to groin. Limb was held up during this application, and kept so for the ten minutes following the compression of the artery. Compression was increased to fifteen minutes after several applications. Under this treatment the flexion of knee was rapidly overcome by the splint and extensions; the redness and swelling of thigh have been much reduced. November 6, the circumference of left thigh, four inches above patella, was thirteen and a quarter (decrease of one and a quarter inches); angle of flexion of knee is increased to 160°. December 6, 1892, circumference, twelve and a half inches. Boy's general health is much improved. The little rise of temperature and absence of the usual pain of osteomyelitis furnished a case upon which this new method of treatment was applicable, and to which in great part the rapid gain is attributed.

[Service of DR. W. W. KEEN].

DOUBLE TALIPES EQUINO-VARUS AND PHIMOSIS IN CASE OF RACHITIS.

CASE I.—D. H. P., colored, aged 4 years, was circumcised for an extremely long prepuce and incontinence of urine; healed nicely. November 5, 1892, Phelps' operation of open incision was done on both feet, cutting everything down to tarsal bones by curved incision across soles. Very little hemorrhage. Feet now stretched into good position and sole wounds firmly packed with iodoform gauze, antiseptic dressing, with plaster-of-Paris casts applied from toes to above knees, the feet being held in corrected positions while plaster set firmly. Wounds were separated every few days and plaster renewed each time, feet being thus held in corrected position. No pus, and wounds healed nicely by granulation; in thirty days feet in normal position. This operation is applicable and recommended in extreme contraction of soft parts, as in Case II, following a paraplegia, or in congenital cases as this one, where the dislocation of astragalus is not so extreme as to thus allow it to be partially replaced by relaxation of all the binding soft tissues, then entirely restored by forcible manipulation.

TRAUMATIC PARAPLEGIA, WITH CONTRACTION OF TENDO-ACHILLIS AND PLANTAR FASCIA.

CASE II.—J. W., male, aged 22 years, admitted to nervous ward April 4, 1892. History of having been struck by falling coal in mines in October, 1890. Sensation and motion lost entirely in lower limbs for one month, since which have been gradually recovering. Knee-jerk absent; wasting of lower limbs, and feet in equinus position; cannot walk. Referred to surgical from nervous ward. Tenotomy of tendo-Achillis and Phelps' operation on soles of both feet (open incision down to bone). Feet brought easily into proper position, and after firmly

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packing sole wounds with iodoform gauze, applied antiseptic dressing, and put up in tin right-angled splints. Wounds in soles of feet were packed every four to five days, granulations forming in rapidly, no pus, and in four weeks were closed, when massage and electricity were continued as before operation. Shoes with braces up to the hip and abdominal support were ordered, with which he walked well on soles of feet with aid of crutches first, then doing without support could get along very well.

TORTICOLLIS (CONGENITAL); OPERATION.

CASE III.—J. H., male, aged 10 years. Marked shortening of right sterno-cleido-mastoid. No history of injury at birth: no rheumatism or enlarged glands. Mother says he has always held "head" (chin) to left, and that there was never any spasm of any muscles of neck, nor is there now of the much shortened right sterno-cleido-mastoid, drawing chin off at angle of 50°.

Operation. — September 17, 1892; ether. Back of neck resting on small pillow, head well extended to bring sterno-cleido-mastoid taut. Open two-inch transverse incision one-half inch above sterno-clavicular articulation. Careful dissection through sternal attachment, it being then found necessary to also divide clavicular attachment of the right sterno-cleido-mastoid muscle, using Horseley's dural separator to get under and separate fibres of muscle and its sheath from carotid vessels, which could now be seen plainly just beneath. No hemorrhage; head now brought straight; eight silkworm gut strands put in for drainage, four sutures of same material closing the wound; sterile dry dressing with a bandage around from head to shoulders to retain corrected position. Drainage removed next day, and head now simply kept between pillows. Patient up and about on third day, sutures removed and wound healed on eighth day. On the thirteenth day massage to chest and back was begun and the boy put through movements on horizontal bar to correct the asymmetry of thorax due to the moulding of the bones from infancy and caused by efforts at compensation in drawing up right shoulder. The boy was thus cured of the torticollis, and asymmetry greatly improved.

Under modern antiseptic methods open tenotomy is preferred, there being no risk of suppuration taking place, while the danger of causing a fatal hemorrhage by incision of carotid or internal jugular is much less than by the subcutaneous method.

It is inadvisable to operate on spastic cases, especially those in which posterior groups of muscles are involved (trapezius, scaleni, etc.). Several such cases are now in the hospital, apparatus for holding the head in proper position being the only surgical treatment recommended.

GENU-VARUM; MACEWEN'S OPERATION.

CASE IV.—M. C., female, waif, colored, aged 3 years, knock-

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kneed; been getting worse since walking. With knees touching together the feet stand eight inches apart. Patient in good health. September 3, Macewen's operation was performed as follows: Limbs held firmly over sand bag; small incision on anterior aspect of thigh one and a half inches above knee joint; osteotome inserted and each femur thus cut almost through, then broken by catching just above and below incision, bending limb over operator's knee, when the break was denoted by an audible snap. Simple antiseptic dressing after a catgut suture was put in to close each wound. Each limb, from toes to thighs, was put up in plaster and three pounds extension applied. Wounds healed by first intention. Casts removed from ankles to groin on nineteenth day and the extension on twenty-third day, bones being perfectly well hardened at point of union and in good position on twenty-fifth day. Child would not remain quiet, getting up and walking about in bed on thirtieth day, so casts were kept on a few days longer for protection, when massage was begun. In seven weeks after operation was walking about as usual; limbs in normal position.

In marked simple knock-knee, without bowing of any bones and with firm ligaments at the knees, this operation is recommended.

OLD POTTS' DISEASE; DORSAL SPINE; ANCHYLOSIS OF RIGHT HIP, WITH DISLOCATION OF FEMORAL HEAD.

R. A., female, aged 9 years, comes to hospital with negative family history. When 3 years of age fell on floor, since which time back and hip have been troubling her, and singularly, though never treated by a physician, nor having worn a jacket extension to limb, or been laid up in bed for any length of time, she has had no abscess or sinus form from spine or right hip, both being now firmly anchylosed for past six months. There is a marked hump in dorsal region of spine, with much callus thrown out. The head of right femur is thrown back, and thigh, rigid and wasted, is at an angle of 120 degrees to body. Limb four inches shorter than left. Walking done with great difficulty by bowing body forward.

Operation.—Gant's method. Small incision below great trochanter, Adam's saw used from above down; gentle snap of bone when almost sawed through, limb being then brought down in good position, and the shortening now reduced to one and a half inches. No bleeding. Dry sterilized dressing, limb being held in position by sand bags and extension. In six weeks was sitting up; got out of bed in seven weeks; ordered crutches and high sole, one and a half inches, on right shoe, to produce symmetry. Patient walking well and discharged in eight weeks after operation with much gain in flesh and strength. Advised to use crutches for a few months to prevent irritation of the tubercular hip, and to continue heightening right shoe as the patient grows.

F. SAVARY PEARCE, *Resident Physician.*

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EDITORIAL.

ASIATIC CHOLERA IN HAMBURG IN 1892.

In view of the possibility of the appearance of Asiatic cholera in this country during the coming summer months, a just statement of the extent of the disease as it occurred in Europe during the past year may not be without interest. Perhaps the majority of the readers of the MAGAZINE have never witnessed an epidemic of cholera. For these, it is impossible to take the published reports at their real value. During the prevalence of any serious epidemic, the excitement is so great that all reports are apt to be exaggerated; particularly is this true of non-medical statements.

The recent outbreak of cholera in Hamburg was the most severe in the history of that city, as well as the most violent in the epidemic of the past year. It was with the idea of giving the extreme view of the case that Hamburg was selected as the subject of these remarks. Startling as was the truth, the reports as published by both the lay and medical press were so much overdrawn that unnecessary alarm has resulted.

In round numbers the population of Hamburg may be stated to be about 600,000. A recent official bulletin states that during the epidemic, beginning August 17 and ending October 23, about 19,000 cases occurred in the city. Of this number 7,700 died, a mortality of a trifle above 40 per cent. In relation to the total population a little above 3 per cent. were affected, while the deaths amounted to less than 1.3 per cent. Although the first case was not reported until August 17, the disease had reached its maximum of violence by August 28, on which day 104 cases of illness were reported, which included forty-six deaths occurring on that day.

There are some interesting facts connected with the distribution and mortality worth mentioning. Although the disease was distributed more generally over the city than in any previous epidemic, the cleaner and more healthful portions of the city, occupied by the better classes, were noticeably free from the malady. The Veddel district suffered the greatest. Here 133 cases of the disease occurred in each 1000 inhabitants, or 13.3 per cent. of the whole population. Most of these people were new comers, who lived in lodging houses and who were engaged in digging in the soil. Of the 3,500 permanent inhabitants of this district, but 80 suffered from the disease. Although the Veddel is low and

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swampy, less than 23 per 1,000 of the permanent residents suffered from the malady; of the strangers who were working in the swampy ground, nearly eight times as many were affected. It would seem that to explain this difference we must look either to the occupation of the non-residents, or to the sanitary condition of the lodging houses, or to both.

This is in accord with the theory advanced by von Pettenkofer. He holds that, for cholera infection, three conditions must be present: (1) a specific germ; (2) a predisposition of the individual; and (3) certain local conditions, depending on soil, ground-water, etc. As an evidence of his faith in this opinion, he swallowed a quantity of a fresh bouillon culture of the cholera bacillus, after taking fifteen grains of sodium bicarbonate to neutralize the acidity of the stomach. No care was observed in the subsequent diet. For a few days, frequent watery stools were passed, which contained the comma bacillus. There were no other symptoms. On the seventh day the stools were normal, and two days later the bacilli could not be found in the passages. Emmerich repeated this experiment with the same result.

The methods usually employed for disinfection, particularly in the case of immigrants and their personal effects, are wholly incapable of accomplishing what is expected of them. Our efforts should be directed more to improving the sanitary conditions of our cities and thus avoid the second and third conditions mentioned by v. Pettenkofer.

It is not intended by these remarks to detract anything from the gravity of cholera, but rather to show that it is a disease which is not beyond our control. It is possible that with advance in therapeutics the mortality may be reduced much below the figures given. Daland in his valuable paper in the last number of the MAGAZINE gives the death-rate of the patients treated at Swinburne Island as 27 per cent. Reasoning from the nature of the disease, it seems probable that the mortality must always remain high, but we believe that much more may be done to prevent its introduction and spread than can be accomplished in the direction of reducing the number of fatal cases.

INTESTINAL ANTISEPTICS.

SEVENTY years ago Dr. George B. Wood introduced turpentine in the treatment of typhoid fever; for many years sulphuric acid has been regarded as a useful remedy in cholera; and in the *Medical and Surgical Reporter* of February 1, 1873, Dr. J. B. Mattison, of Chester, strongly recommends the use of salicin in diarrhea. While empiricism dictated the use of these drugs in the respective diseases, modern

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bacteriological researches have rendered the cause of their action apparent.

Recent contributions to the study of gastro-intestinal disorders have almost revolutionized the treatment of this class of affections. The experiments of Melchenko show conclusively that turpentine and allied substances, even in dilute form, prove destructive to typhoid bacilli, and this action, together with the stimulant properties of the drug, serve to explain its wide field of usefulness in the treatment of typhoid fever.

Thymol is a more powerful antiseptic than turpentine, and has been recommended by several observers as a substitute. In the second volume of *The Lancet*, for 1891, Dr. Pearson states that he has treated several hundred cases of typhoid fever in South Africa without a single death, and that the only remedy used was liquor sodæ chlorinatæ, given in doses of fifteen minims in an ounce of water every three hours.

The most successful results in cholera appear to follow the conjoint use of subcutaneous injections of weak saline solutions and copious enemata of 1 per cent. solutions of tannic acid. Cantani has shown that 1 per cent. solutions of tannic acid exert a decidedly destructive influence upon the bacilli, and more recent studies render it highly probable that the acid also helps to neutralize the toxines formed by the germs. Hueppe, Löwenthal, Gonsalez and Nicholson all testify to the value of salol as an antiseptic in cholera. They administer fifteen grains of the drug every three or four hours in the early stage of the disease.

In dysentery, rectal injections of antiseptic solutions have proven very efficacious. Dujardin-Beaumetz prefers benzo-naphthol in the proportion of one part to a thousand of water as an enema in this disease.

Dr. Vondergoltz, of New York, who has been studying the action of lysol since 1890, recommends a 1 per cent. solution of that drug in dysentery, and in the summer diarrhea of children he uses a mixture of five parts of lysol to ten parts of sherry, of which he orders ten drops to be taken with the milk every few hours.

Injections of 1 per cent. solutions of creolin have also been quite extensively employed in dysentery.

In the intestinal catarrhs of childhood the antiseptics are almost indispensable, and probably salol, salicylate of sodium, and benzo-naphthol are the best. They may be conveniently combined with bismuth subnitrate or prepared chalk. The superiority of these remedies over opium in this class of diseases has been thoroughly established.

In obstructive jaundice intestinal symptoms are often prominent, and result from the absence of bile, which is the natural antiseptic pre-

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pared by the liver to prevent putridity of the fecal matter. In such cases naphthol, thymol or salol may be employed with advantage.

THE PROPOSED NEW WING FOR THE UNIVERSITY HOSPITAL.

IT is probably not generally known that the original plan of the University Hospital has never been realized on account of lack of funds. Since its erection it has been kept constantly filled with patients from all parts of the State and country. At present, although every available space is utilized to its fullest extent, the hospital still lacks accommodations for the large number of applicants who are constantly seeking treatment here.

It is proposed, therefore, to build an additional wing, which will complete the original plan of the hospital. To this end a bill has been brought before the State legislature asking for an appropriation. Although the clinical teaching of the University has been second to none in the country, the necessity for extending this department of medical instruction is keenly felt by the faculty as well as the students. The Medical Department of the University now has in attendance a larger number of students than has ever assembled at any medical school in this country; and, as a result, the increased demands made upon the clinical resources are necessarily met with difficulty. We conceive that no more worthy charity is to be found in this country, for, in addition to being one of the most active in the work of a great general hospital, the University stands in the front in the amount of and facilities for work in all the special departments of medicine. Last, but not least in importance, from this source nearly 850 medical students must receive their instruction. Who can estimate the comfort and the number of lives that will depend upon the knowledge and skill which they will acquire here?

Owing to the facilities which the University Hospital possesses for treating special cases, a considerable number of patients suffering from the gravest medical and surgical affections are brought here. As these facilities are maintained at an expense considerably increased above that of a general hospital, a deficit has been incurred yearly in spite of the most judicious management.

A large number of the patients treated are from the State of Pennsylvania, no less than 512 having been received into the hospital from the counties of Pennsylvania outside of Philadelphia in the last year. It has always been the policy of the hospital to receive, without charge, any accident cases happening in the State, when application is made within twenty-four hours.

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We hope that University graduates throughout the State, and all who are in sympathy with the good work which the University of Pennsylvania is doing, will feel a personal interest in the bill, which has been introduced at Harrisburg for the purpose above mentioned, and will use what influence they may have toward securing its favorable consideration.

THE ELEVENTH INTERNATIONAL MEDICAL CONGRESS.

THE Eleventh International Medical Congress will be inaugurated in Rome, Italy, on September 24, and will close October 1. The work of the Congress begins on the morning of September 25, in the nineteen sections which will be represented.

A. Jacobi, M.D., 110 W. 34th Street, New York, N. Y., is chairman of the American National Committee.

"LITTELL'S LIVING AGE."

Of the almost innumerable American periodicals which thrust themselves forward for place upon the table of the physician's waiting-room, the *Living Age* is the most venerable. Its 195 complete volumes fill a bookcase in our library, and we speak from intimate knowledge in affirming that no other weekly visitor keeps its subscribers so thoroughly *au courant* with the literature of the day. Science, history, biography, literature, fiction, poetry, are all well represented. Thus, in the early issues for 1893, we have J. P. Mahaffy discussing the curious discoveries of *Papyri* in Egypt, by Mr. Petrie; Lewis Latimer sketching the character of that extraordinary individual, Francois Timoléon, Abbé de Choisy; Henry Charles Moore dilating charmingly upon the manners and customs of the Burmese; and Charles Edwards telling us of Carmagnola, the celebrated Italian free lance; while Goethe and Michael Angelo are, in different articles, put before us in new and interesting lights.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

The Uses of Dermatol.

Heintz (*Berliner klinische Wochenschrift*, No. 47, 1892), in an article reviewing the literature pertaining to dermatol, states that its insolubility is a property which contributes largely in making the drug non-poisonous. All authors, with the exception of a few, agree in the opinion that the drug is absolutely non-poisonous. In those cases where poisonous effects have been noticed, an impure drug has probably been used. It is an entirely unirritating drug, redness, swelling and eczema never following its use. The antiseptic action is not very marked, but it probably inhibits the growth of bacteria. He thus tabulates its use: In surgical practice: (1) In fresh wounds its unirritating character makes it a valuable adjunct in dressing operation wounds and fresh accidental wounds. (2) In old wounds without suppuration, and with loss of substance, dermatol encourages granulation and hastens the formation of skin. (3) It is of use in suppurating wounds only when the pus is not abundant, and here to be useful it must be used in a thick layer. (4) In penetrating wounds and in abscesses with profuse suppuration it is useless, but when the wound begins to granulate it may be used with benefit. (5) In burns it is especially useful, its unirritating character and power of lessening secretions making it of value. In surgery it is usually used in powder mixed with starch or talc. Before its use the wound must be made entirely aseptic, because it will form a crust under which pus formation and growth of bacteria can take place. In dermatology it may be used in the shape of gauze to protect the sound skin where irritating substances are being used. In gynecological practice: It is useful (1) in powdering over the abdominal wound in laparotomies, and is exceptionally valuable. (2) In old laparotomy wounds where skinning will not take place. (3) In thoroughly septic hollow wounds, as in the sac of extra-uterine pregnancy, the sac may be filled with the powder with good effects. (4) In plastic operations it forms a crust under which healing goes on rapidly. In dermatology it is useless in dry skin eruptions and chronic processes, but is useful (1) in acute eczema and in intertrigo. (2) In fissures. (3) In burns. (4) In sweating hands and feet, the following prescription may be used: ℞. Dermatol, 20; starch, 10; talc, 70. (5) In balanitis; (6 In phimosis operations; (7) In all leg ulcers which are not torpid it acts almost as a specific. In otology it is useful in otitis externa and otitis media; it may also be used in steatomatous concretions, forming a crust over them by which they may be removed. In rhinology it may be used after galvano-cautery operations. It may be used as a snuff or be blown into the nasal cavities, and is useful and unirritating. In ophthalmology it may be used after operations, and in burns and in phlyctenular keratitis of scrofulous children. In internal medicine it is one of

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the best anti-diarrheic remedies. Dutto says: In colliquative diarrhea of phthisis it may be used where there are more than six stools daily in a dose of three to six grains daily. In diarrhea of typhoid fever it may be used in all stages of the disease. In enterocolitis and in malarial diarrhea it is useful. Colasanti and Dutto believe it to be the best material in modern therapeutics for its local action in diarrhea.

The Cold-Bath Treatment of Typhoid Fever.

Osler (*Medical News*, December 3, 1892), in a lecture delivered at Johns Hopkins Hospital, thus sums up the effects of the treatment. Reduction of fever, principally by favoring heat dissipation, and by the direct action of the cold water upon the blood that circulates in the superficial vessels. It is a tonic to the nervous and circulatory systems. Perhaps the most striking effect is the lessening of the nervous irritability, the favoring of sleep, and the clearing of the mind. Patients who receive the treatment early, rarely have the dry tongue, subsultus, muttering delirium, and other grave symptoms. General nutrition appears to be improved; the patients take their food better and digest better. He believes it is better to bathe doubtful cases, where the temperature is above 102.5°, than to wait for a positive diagnosis. The contra-indications are intestinal hemorrhage and perforation. Neither pneumonia nor bronchitis is a special contra-indication. He uses the bath treatment because it has so greatly reduced the mortality of the disease. The mortality has been reduced from 15 to 25 per cent. to 6 or 7 per cent. He believes it is difficult and often impracticable to use the treatment in private practice, but with a good nurse, and the intelligent assistance of one or two members of the patient's family, it can be carried out. A portable bath-tub is a necessity in most private cases.

Antiseptic Spray in Facial Erysipelas.

An inaugural thesis by Colas is thus abstracted in the *Revue Générale de Clinque et de Therapeutique*, of September 14, 1892. The following solution is used: ℞. Corrosive sublimate; tartaric acid, āā gr. xv.; alcohol, f℥iss.; Sulphuric ether, f℥iii.

This is sometimes painful by reason of the evaporation of the ether; it may also cause a dermatitis, and, finally, after recovery, there may be a disagreeable pigmentation remaining. To prevent this, additional tartaric acid may be added to avoid the formation of the albuminate of mercury. The formula may be a solution of tartaric acid with one to a thousand parts of corrosive sublimate. The atomizer of Richardson or Lister is advised. The instrument should be held ten to twelve inches from the face. The sprayed liquid forms a coating for the swelling, which is on the border of the diseased part. Each séance should last one minute, and the atomizer should be worked three to four times. There should be two to four applications daily. The eyelids and mouth must be closed and the eyes protected by two tampons. This treatment must be combined with proper internal treatment, tonics, alcohol, caffein, proper food, etc.

Results of Expectant Treatment of Typhoid Fever.

Spence (*Medical Record*, New York, November 26, 1892) reports 323 cases of typhoid fever with forty-seven deaths, or a mortality of 14.23 per cent. Of the forty-seven who died twelve were moribund on admission, so that the actual mor-

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tality was 11.25 per cent. The treatment was purely expectant, but few drugs being administered, and those only to combat symptoms. In only about 2 per cent. of the cases did relapses occur. Hemorrhages of the bowels occurred in ten of the cases, and was fatal in six. In the year 1886 eighty cases were treated with a mortality of 5 per cent., showing that it is not just to judge of mortalities by a small number of cases.

Feeding in Fevers.

Peabody (*Medical Record*, November 26, 1892) believes that in all kinds of illness, and especially in fevers, attention must be paid to the appetite and desire of the patients. If a patient is really hungry solid food of a properly selected kind, and in judicious quantities, will rarely disagree with him. He believes there is less danger in doing harm to an ulcerated ileum in typhoid fever by giving finely-divided egg, beef or chop than by giving milk. He habitually gives his patients with typhoid, who are hungry, such food. He believes it is a mistake to withhold solid food merely because a patient has fever, and that it is incorrect to regard milk as a fluid food. Milk will always remain the most serviceable, general food in disease, but where it fails to nourish the patient, where it is not well borne, where it cannot be taken for any reason, it is well to remember that efficient adjuncts and substitutes are within reach.

Diphtheria and its Relationship.

As a curiosity of the current literature, the following extract is made from an article by Liebig, in the New York *Medical Record*, November 19, 1892. "The organism [diphtheritic] reaches the human economy by means of uncooked food, perhaps also in water, in the form of a small, insignificant larva, and here begins the progeneration in the production of ova. Diphtheria is caused by a living organism. This may be either winged or unfledged—infectio originalis. The constituents of true diphtheria consist in spirals, ova, granules, episperm. The so-called membranes . . . are chemically and physiologically identical with the factors originally deposited in the intestines, and are partially their products of separation.

The Relation of Pseudo-Diphtheritic Angina to Diphtheria.

Booker (*Bulletin of the Johns Hopkins Hospital*, October-November, 1892), in an able paper says that the distinction between diphtheritic and scarlatinal angina is based upon: (1) clinical features; (2) anatomical changes; (3) etiology. Clinical features: In some cases the throat affection is not separable, but typical cases show considerable difference. Scarlatinal angina—the membrane has a yellow color and cannot be stripped off in connected shreds, there is tendency to ulceration and suppuration, adenitis is of more pronounced inflammatory character, more sensitiveness of the throat and pain on swallowing, the disease extends by continuity to the ear and rarely to the larynx; fever is active. If the fever is active and the symptoms in general are of an inflammatory character while there are only small, scattered patches in the throat the disease is probably scarlet fever. Diphtheritic angina—in fresh cases the membrane is white, has a thick, tough consistency, and can be stripped off in large shreds, suppuration is exceptional, pain and swelling less prominent, no tendency to ulceration, the disease extends chiefly to the air passages, fever is less active; if it falls in a few days it points to diphtheria. Anatomical changes. Scarlatinal angina; when death occurs early the membrane

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seems more inlaid in the tissues than set on the surface, and the tonsil is melted down into a half-purulent mass. Microscopical examination shows the tissue to be necrotic and micrococci are found in it; the remote organs show extensive diseased changes. The invasion of micrococci in remote organs, occurs as a rule, perhaps, always. Diphtheritic angina: Gangrene of the mucous membranes and deep ulceration seldom occur. Purulent melting of tissue is exceptional. In fatal cases the air passages are as a rule implicated. The false membrane has greater extension and more nearly the normal consistence. It is more adherent and removed with difficulty. The change in the structures in which the false membrane develops is characterized by a death of the superficial parts, the epithelium being surrounded by living cells. The affected tissue undergoes coagulation necrosis. The separation of the membrane leaves behind it a raw, bleeding surface. The bacilli are found underneath the superficial layer of false membrane. The layer of membrane in which the diphtheritic bacilli are found is rich in cells. Near the basement membrane the cells and bacilli are fewer. The bacilli do not invade the blood and tissues of the body, but the toxic products of the bacilli are absorbed, and definite lesions result. A death of the cells occurs, shown by a fragmentation of the nuclei, complete disintegration, and then a fibrinous metamorphosis occurs.

Etiology: The decisive practical distinction between diphtheritic and pseudo-diphtheritic angina is based upon the established belief that diphtheria is caused by a specific bacillus, the Klebs-Löffler bacillus. Where this organism is present it is safe to consider the disease diphtheria. Where it is absent it may be considered *not* diphtheria. Membranous angina does occur without the presence of true diphtheritic bacilli, or the so-called pseudo-diphtheritic bacilli are found. He quotes a great number of observations of different anginas, many of which resembled diphtheria in which no diphtheritic bacilli were found, but only cocci. He reports twenty-three cases—eleven were scarlatina with pseudo-membranous angina. Four were scarlatina with redness of the throat without pseudo-membrane. One had pseudo-membranous angina without eruption. Two had measles followed by pseudo-membranous laryngitis without visible membrane in the throat; one was fatal. One had measles with pseudo-membranous angina and membrane on the eyelids and proved fatal. Three had follicular tonsillitis without resemblance to scarlet fever or diphtheria. The Löffler bacillus was not found in any of these cases after careful cultures and inoculations were made. Streptococci were found in all the cases. Many of the cases would formerly have been considered diphtheria.

Acute Pancreatitis.

Day (*Boston Medical and Surgical Journal*, Vol. cxxvii, No. 24) reports a case of this obscure disease as follows: A physician, 44 years old, always subject to indigestion, while traveling abroad three years ago had a sudden attack of syncope. He was in partial collapse for twelve hours and gradually recovered after several weeks of illness. For a year previous to this attack he had been gradually running down, and his indigestion had been extreme. There had been constant distress in the abdomen, which was relieved by applying chloroform locally. Artificial stimulation had become necessary. April 6, 1892, he began to have uncontrollable vomiting with violent retching—never hematemesis. He complained constantly of agonizing pain in the epigastrium and in the right hypochondrium, where there was tenderness on pressure. He gradually grew weaker; became delirious; there was scarcely any fever; the bowels were constipated. At one time there was decided jaundice. He continued with variations of the above symptoms until July 11, 1892, when he died suddenly in collapse.

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Autopsy.—Chest organs found normal; spleen, liver and kidneys normal. There was no evidence of peritonitis, general or local. The intestinal tract was normal. The gall bladder contained a small biliary concretion, and two other small particles almost occluded the common duct. The head of the pancreas was slightly more dense than usual; the body and tail were enlarged in all dimensions, abnormally hard and dense, exuding a light, chocolate-colored liquid; the color of the body and tail bordered on chocolate. On the surface were many dark areas of irregular shape. On section, these spots were seen to be conical and appeared to be altered blood. Many hard, gray nodules occurred. No microscopic examination was made, but Professor Whitney said there was hemorrhagic infiltration of the body with thrombosis of the pancreatic veins. The author suggests that pancreatitis is probably more common than it is thought to be, and is probably a factor in many obstinate cases of indigestion. Fitz (*Ibid.*) says that the above case confirms the relations between gall stones and pancreatitis, which is analogous to that between appendicitis and inspissated feces. In the past two years there has been no considerable advance in our knowledge of the etiology of the subject. One case has been reported where traumatism was a cause. Osler has reported a case resembling acute intestinal obstruction, in which laparotomy was done; no obstruction found but an indurated mass in the region of the pancreas with areas of fat necrosis in the omentum and mesentery. Noyes (*Ibid.*) says that clinical experience has shown that the disease is more common in men than in women. Etiological causes are obscure. The appearance of free fat in the alvine dejections is a valuable sign of pancreatitis; sometimes there is free fat in the urine in pancreatic disease. Glycosuria occurs in a certain proportion of cases; it sometimes precedes and sometimes follows the disease. Pain varies in severity. It may be due to a local peritonitis, in which event it is circumscribed, and always between the xyphoid and umbilicus. It may be paroxysmal and dependent upon pressure on the solar plexus, in which case it resembles hepatic colic. The jaundice, ascites, edema, stenosis of the pyloric orifice, and possible intestinal hemorrhage cannot be distinguished from the same signs of pressure from other causes.

Ascites Treated with Cream of Tartar.

Susaki (*Berliner klinische Wochenschrift*, November 21, 1892), writing from Tokio, reports twelve cases of cirrhosis of the liver and hepatic syphilis with ascites, in which the ascites was cured by the administration of cream of tartar. If the patient was in good physical condition the cream of tartar alone was used; but if he was weak and emaciated it was combined with tonics. Many times the medicine will not act in the beginning of the disease, but will act in a later period. The drug is most useful in cirrhosis or syphilis of the liver, but may be used in ascites from chronic peritonitis. The dose ranged from two drachms to an ounce and a half per day, the proper dose being that which causes two to three stools daily. It was administered in a mixture. In ascites of high grade paracentesis must be combined with the use of the drug. The effects are not merely transitory, but often lasting.

Erythromelalgia.

The *Berliner klinische Wochenschrift* of November 7, 1892, contains three separate articles by Gerhard, Senator and Bernhardt, each reporting a case of the above rare disease. Gerhardt's case was a woman, aged 44 years. Her previous history is one of continued ill health. Suddenly, on March 21, 1892

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(three months before the case was reported), she was seized with excruciating pain accompanied by redness in the hands and feet, only the left thumb being free. The feet were so sensitive that pressure of the bed clothes caused severe pain. After various medicines were tried a dose of antipyrin gave temporary relief. The disease returned, however, and this time the tongue was so painful it could scarcely be protruded, and the patient spoke with difficulty. The tongue was not distorted. There was slight diminution of the tactile sensation in the feet. The general condition of the patient was unaltered. The reddened parts were bathed in sweat. Senator's patient was a man, aged 44, of good family and personal history. Twenty-one months before the case was reported the man was rather suddenly seized with cutting pain in both arms; this was soon followed by redness over the phalangeal joints of the second and fourth fingers, which spread over the back of the left hand and to the elbow joint. The right hand was then affected, and after a few weeks the joints of both. The parts became so painful that the patient was forced to give up his occupation. When the case was reported there was a dark-red discoloration of the skin over the metacarpo-phalangeal joints of both hands, which disappeared on pressure. The same condition over both elbow-joints, the phalangeal joints of the feet, the back of the feet, the left leg and over the tuberosity of both tibiæ. The joints are movable, not swollen, and are painless. The skin where the redness exists is warmer than normal, and is especially red on warm days, and better on cold days.

The skin over the rest of the body is normal, except that redness and swelling will follow marking by a sharp instrument, as is often seen in cases of urticaria. Small tubercles, which are painful have, at different times, appeared in the reddened skin. The author remarks that since the disease was described by Weir Mitchell, in 1878, only eleven or twelve new cases have been reported, making a total of less than two dozen. The disease begins usually after a short period of malaise, with severe pain in one or both feet, seldom in the hands; the pain may centrally spread to the other parts, but is usually confined to the feet or to a circumscribed spot upon one foot. The pain is increased by heat, and the patient is worse in the summer. After some time a redness appears, which in mild cases disappears, but in severe cases remains, and there may be a rise of temperature, dilatation of the veins and pulsation in the arteries of the parts. The disease pursues a chronic course for years, sometimes better, sometimes worse; its termination is not well known, as the patients have usually disappeared. From an anatomical standpoint, the disease is a chronic hyperemia or erythema. The disease is probably central in origin, some portion of the cord being affected. The treatment is very unsatisfactory. Faradization has been beneficial in one case, and in the author's case it enabled the patient to work. Bernhardt reports a case in a woman, aged 50, who had suffered for five years; both hands and feet are affected much as in the above cases.

Subcutaneous Injection of Oil of Camphor in Phthisis.

Alexander (*Deutsche medicinische Wochenschrift*, November 24, 1892), in a paper read before the Berlin Medical Society, says that he does not consider oil of camphor a specific against tuberculosis, but it is of value in the symptomatic treatment of the disease. It is a tonic, and acts especially by strengthening the heart muscle. He injects fifteen grains of camphor oil for four consecutive days, and repeats it in the same way after a pause of from eight to ten days. In patients with much fever, he uses one-tenth of the dose. In laryngeal phthisis he uses the oil directly upon the lesion. By its property of strengthening the heart, it brings

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about a cessation of the ravages of the disease. It has the special advantage of allowing the patient to be about while under treatment.

GLYCOSURIA AND DECUBITUS DURING THE PUERPERIUM.

MARCUS (*Deutsche medicinische Wochenschrift*, Number 47, 1892) reports a case of labor in which bed sores of extreme severity occurred on the third day after labor. As the time which the patient had lain on her back was so short, he examined the urine and found it to contain grape sugar by reduction, fermentation and polarization. The urine was acid of 1030 sp. gr., contained 7 per cent. of grape sugar and .0001 grain of acetone in 100 ccm. The patient was put upon anti-diabetic diet, and the bed sores healed slowly. In the seventh week the urine was free from sugar, but contained twice the first amount of acetone. In the ninth week the urine was normal and the patient well. There were never any symptoms of diabetes except the sugar in the urine. The breast milk was free from grape sugar. Nine months after labor the urine was normal and the patient well. While many authors speak of sugar in the urine of lying-in women, the writer believes that they usually refer to milk sugar, which is present in the urine of so many cases of labor, and that actual diabetes mellitus has not heretofore been described as a complication of labor.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

THE TREATMENT OF TUMOR ALBUS.

LUTON (*Wiener medicinische Presse*, No. 1, 1893) has employed subcutaneous injections of phosphate of copper, with very good results, in white swelling. He uses the following solutions: Crystalline phosphate of soda, grammes 5; distilled water, glycerine, āā grammes 30; also, acetate of copper, gramme 1; glycerine; distilled water, āā grammes 20. These two solutions are mixed without filtering. A torquoise-blue solution results.

As the preparation has a tendency to precipitate the copper phosphate it is to be well shaken before use.

Usually a hypodermic syringeful is injected deeply into the thigh behind the great trochanter, covering the puncture with collodion after injecting. The injections are generally not very painful, although in some cases pain sets in after an interval of two or three days. The injections are made at intervals of fourteen days. The immediate consequence of this treatment resembles that of tuberculin. The temperature rises on the evening of the day of injection or the next day, and continues over two or three days.

Locally there is congestion of the affected spot; the tuberculous glands swell;

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the diseased joint becomes painful. After the disappearance of the reaction fever, the patient gradually improves, the articular pains disappear and after a few days the mobility of the joint increases and finally becomes complete if the lesion be not too far advanced. If the pains last longer than fourteen days, a second injection is to be made, and so on. As soon as the pains have completely disappeared the patient may leave the bed. This method has the advantage of not compelling the patient to be immobilized. Whether the disease will recur is still a question, as the method has only been tried in a few cases.

A METHOD OF PASSING A SOUND THROUGH AN APPARENTLY IMPASSABLE STRICTURE.

MARX (*La Semaine Médical*, No. 1, 1893) says that in strictures apparently impassable for a sound or bougie, even of the smallest calibre, it is recommended to inject equal parts of a 4 per cent. solution of cocaine and of sublimate 1 per cent. into the urethra, compressing the penis somewhat in advance of the stricture, with the thumb and finger of the right hand. The sound or bougie is then introduced, the compression preventing the escape of fluid. The author states that it is astonishing with what ease the instrument will sometimes penetrate. The result is probably due to the funnel-shaped distension of the urethra in front of the stricture. Possibly the cocaine contributes to the result by reducing to an extent the congestion of the mucous membrane.

THE BEST METHOD OF STERILIZING HARD AND SOFT RUBBER INSTRUMENTS.

LANNELONGUE (*Gaz. Hebdomadaire*, 1892) recommends for the sterilizing of hard and soft rubber instruments subjecting them to the fumes of quicksilver.

The instruments are rolled in flannel impregnated with mercury and placed in closed vessels. By a simple test you can demonstrate that the space becomes filled with the fumes of the quicksilver. The bacteriological examinations show that after a very short time the instruments are thoroughly antiseptic. As a lubricant the author is in the habit of using olive oil; a few globules of the quicksilver are kept on the bottom to keep the oil sterile. Since these measures have been adopted the author has had the best results.

FATAL SUPPURATION BENEATH THE SCAPULA.

TRESKIN (*Medicinische Rundschau*, 1892) says that suppuration beneath the shoulder blade is of rare occurrence, indeed, so rare that the author was unable to find any mention of the condition except in one book. The case which he reports was a marine admitted to the hospital with symptoms of acute fever, sensations of heat and cold, headache, etc. There was some diarrhea present. On the following day the patient complained of acute pain in the right arm, with painful swelling of the axillary glands. On the fourth day the entire right side was swollen, beginning at the median line posteriorly. At a point where the swelling was most prominent an exploratory incision was made down to the ribs. There was no escape of pus—only the discharge of bloody serum. Fluctuation could not be demonstrated. All attempts at relieving the man failed, and he died of exhaustion on the fourteenth day. At the post-mortem a focus of circumscribed suppuration was found beneath the scapula.

ORCHITO-PEXY.

TERRILON (*La Semaine Médical*, January 13, 1893) says that he has six times performed the operation of orchito-pexy for inguinal ectopia of the testicles in

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children from nine to fifteen years of age. In four of the cases the condition was associated with inguinal hernia. The operation gave very good results in three of the cases; the testicle has remained low down in the scrotum and has become enlarged.

In three cases the results were not so satisfactory. In one boy the testicle has enlarged, but has been drawn up again in spite of the application of a truss. In the remaining two boys the testicle has also been drawn up again, but there has been no increase in the size of the organ, although in one case two years, and in another two and a half, have elapsed since the operation was performed.

Berger says when there is imperfect obliteration of the funicular process of the tunica vaginalis, the passage usually remains patent above and below, a condition which favors the formation of an inguinal hernia. The greatest difficulty, sometimes, is drawing the testicle down into the scrotum. This is due to the fact that the prolongation of the peritoneum which envelops the testicle is very short, and does not really admit of the descent of the organ. It is necessary, therefore, to divide the serous membrane into two portions, the lower of which is to be retained as the tunica vaginalis, while the upper one is closed. In other cases the retention of the organ is due to an abnormal insertion of the gubernaculum, and this must be divided before the testicle can be drawn down.

In any case the cord must be separated from adjacent structures as high up as possible. When the testicle is retained in the abdominal cavity it is covered by the peritoneum and connected with the deeper parts by very tough fibrous adhesions. It is in a state of atrophy, and simple castration is the operation to be selected. Sometimes the vas is imbedded throughout its whole length in very tough connective tissue. The testicle has occasionally sloughed after being drawn down.

According to Félizet the presence of an inguinal hernia is to be looked upon as a favorable complication of ectopia of the testicle.

The Present Status of Drainage in Surgery.

Cartledge (*Medical Record*, December 10, 1892) says that the principle of artificial drainage in surgery, while very ancient, was imperfectly understood, and was oftentimes as much a factor for evil as for good.

Though our knowledge of the principles which govern a healthy regeneration of wound structures has greatly advanced, and our progress in wound therapeutics kept pace, we fail to appreciate how artificial drainage can be altogether dispensed with in surgical practice. To lessen the use of artificial drainage it is necessary to thoroughly apply the principles of asepsis and antisepsis, combined with buried sutures, fixation and alimentary or systemic drainage. Where from any reason the production of serum cannot be controlled, its removal by drainage is a safer surgical procedure than any attempt at sterilization in situ.

The time required for primary drainage is from twenty-four to sixty hours; to wait longer is to encourage trouble; to remove sooner than twenty-four hours is taking risks not warranted in the premises.

Capillary is to be preferred to tubular drainage in wounds other than those of large cavities. For this purpose absorbable material should be selected, catgut being the best.

Where it is desirable to combine hemostasis and drainage in the same case, strips of iodoform gauze, as recommended by Mikulicz, fulfill a most useful purpose.

Where natural drainage can be utilized without producing unsightly cica-

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trices, artificial drainage should be dispensed with; when feasible, combine the two.

Wounds involving the brain and cord had best be drained to avoid mechanical violence to the function of delicate structures by retained serum.

Necessity for drainage will most often arise in wounds invading the large cavities; here flexible tubular drains best meet the requirements, aided or not by materials acting by capillarity. The method of secondary suture after primary wound secretion is over, advised by Kocher, seems to possess no advantage over drains that have to be removed, and is certainly not to be compared in convenience, comfort, etc., to the patient to absorbable capillary drains.

The Present Status of Gall Bladder Surgery.

Czerny (*Oestungarisches Centralblatt für die medizinischen Wissenschaft*, December, 1892) thinks the decision of the questions as to whether or not an operation is indicated, should depend upon the severity of the case, and upon the facts whether internal treatment has proven effective during the attacks, whether icterus is present, or whether fever exists. The operative cases are divided into those in which icterus has existed for a short time, and those in which it has been present for a long time, and is attended with severe disturbances. The cases in which icterus is not persistent may be due, first, to the obstruction of the cystic duct by a calculus, the gall bladder being either in a healthy condition, or in a state of purulent inflammation, or ulcerated, friable, and the seat of cicatricial stenosis.

In the first group of cases the author recommends cholecystotomy followed by immediate suture of the gall bladder after the removal of the obstruction, with drainage of the abdominal cavity. In the second group a biliary fistula should be established, which if it fails to heal may be closed secondarily. In the third group the gall bladder should be extirpated and the cystic duct occluded by cauterization. In cases where icterus has existed for a long time, and if it is impossible to locate the obstruction in the ductus chledochus, or to remove the calculus, if found, by crushing, cholecystenterostomy should be performed. In all operations on the gall bladder the author recommends the hooked-shaped incision, the vertical segment being situated in the linea alba, and from five to seven centimetres long, and terminating closely beneath the umbilicus. Gall stones demand operation if they occasion repeated and prolonged disturbance. Empyema of the gall bladder demands operative interference, and the same applies to hydrops attended with serious disturbances.

The typical operation in cholelithiasis consists in incision and evacuation of the calculus and suture of the gall bladder; the abdominal wound should be drained for a short time.

If the cystic duct be no longer pervious, and the gall bladder is inflamed and its contents markedly altered, a temporary biliary fistula should be established.

In cases of occlusion of the ductus choledochus operative interference is indicated so long as the patient's strength permits; the removal of the obstruction, and the establishing of a fistula between the gall bladder and the duodenum are advisable.

The danger to life in operations for biliary calculus are less than those for urinary calculi.

Treatment of Burns in Children.

Wertheimer (*British Medical Journal*, 1892) says that the most probable cause of death in burns is the absorption of some poisonous product. This poison

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is said to be a ptomaine not unlike miscarine in action. Ointment-like applications are more efficient than dry ones, although the latter have some advantages, such as not requiring frequent changing. The object of treatment is to apply some anodyne and antiseptic agent, and to lessen the irritability of the nervous system. Iodoform vaseline is among the best of ointments, but the author does not use it in children, owing to the danger of intoxication.

The carron oil is a valuable agent, but as it is not antiseptic the author adds thymol (0.05 to 0.10 per cent.). Another combination is the subnitrate of bismuth with boric acid, lanoline and olive oil. The author recommends thymolized carron oil for the first two weeks, and then the above-named ointment.

Examination of the Urine of Persons Suffering from Suppurative Diseases.

Nannotti and Baciocchi (*Clinica Propereutica e Patologia Speciale Chirurgica della R. Universita di Pisa*, 1892) report that in their examination of ten cases, the staphylococcus aureus and albus were always found.

The results of the examinations are as follows:

(1) That in all suppurative conditions the organisms are eliminated by the urine.

(2) The eliminated organisms still retain their virulence.

(3) Such urine is more poisonous than the normal secretion.

(4) The same wounds can be infected.

(5) Therefore, diuretics should always be employed, especially those that exert the minimum amount of damage to the kidneys.

(6) Hygienic treatment should be directed toward preventing infection of the urine.

Suturing the Patella for Fracture.

Berger, in the *Bulletin et Mémoires de la Société de Chirurgie*, Tome xviii, 1892, p. 523, describes a case of fracture of the patella in a small girl. The bone was broken in two pieces, a large one above and a small one, one centimetre square, below. It failed to heal under treatment by a posterior splint and adhesive straps. He exposed the fragments and encircled them with a silver wire which was passed through the tendinous insertions in the bone. The wire was drawn tight, twisted, and allowed to remain, the overlying parts being sutured shut. Healing by first intention took place, and all apparatus was removed on the fortieth day. He regards the operation as a new one, and explains the difference from that of Max Schede, in which the ligature is passed antero-posteriorly around the broken bone, and therefore traverses the joint.

The Surgical Treatment of Undescended Testicle.

Broca, in the *Gazette Hebdomadaire de Medecine et de Chirurgie*, October 15, 1892, reviews the treatment of undescended testicle. In this affection the testicle may be arrested in its descent by fibrous adhesions around it, by fibrous bands shortening the cord, or by a fibrous septum at the entrance to the scrotum. These can all be detached and the testicle brought down. Attempts to prevent the receding upward of the organ by a cord or thread running from it to some point of attachment below, as in the perineum, are not regarded favorably by the author. This object is to be accomplished rather by a firm closure of the canal from above

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downward. The results claimed for this procedure are very good both as regards the postion of the testicle and the cure of the concomitant hernia, twenty-two cases of the latter occurring in twenty-four cases.

A Case in which Successive Aneurisms were Treated by Ligature of Four Large Arteries.

Mackellar, in *The Lancet* of December 3, 1892, contributes a clinical lecture on a case in which the two popliteal and right carotid and subclavian arteries were ligated. The patient was a man 30 years of age. There was a history of venereal disease, but not of syphilis. In 1888 the right superficial femoral artery was ligated for a popliteal aneurism. From this operation recovery was satisfactory. Five months later the left superficial femoral was ligated for a popliteal aneurism on that limb. Four years afterward an aneurism of the innominate had shown itself, and for its treatment the common carotid and subclavian arteries of the right side were tied. While passing a ligature around the subclavian artery the latter broke, and a separate ligature was placed on its distal and proximal ends. The patient recovered from the last operation only to die three months later from hemorrhage due to rupture of the aneurismal sac.

Biliary Enterostomy.

In *Le Mercredi Medical*, December 7, 1892, Reclus gives the history of a case on which he operated for obstruction of the bile duct by a gall stone. The diagnosis was obscure and the condition of the patient bad. On operating, the liver was found much enlarged, the gall bladder distended and the hepatic duct blocked by a calculus. The incision was made in the median line. On account of the large size of the liver, access to the calculus and duodenum was impossible, so the former was allowed to remain and a fistulous opening was made between the summit of the biliary bladder and an adjacent coil of small intestine. The Czerny-Lembert suture was used. Two days after the operation the patient had a couple of chills which, however, passed off and an excellent recovery ensued. The operation was rendered more difficult by the delay of the patient in seeking relief, as the disease had been in existence eleven months before any interference was permitted.

An Operation for the Division of the Superior Maxillary Nerve.

In *The Lancet* of October 29, 1892, Rupert C. Chicken gives the following method of dividing the superior maxillary nerve close to its exit from the foramen rotundum: A vertical incision two inches long is made over the broad base of the zygomatic process of the malar bone; also another parallel to it, over the zygoma, just in front of the temporo-maxillary articulation. These are to be joined, about an inch above the zygoma, by a horizontal incision, and the flap reflected downward. Divide the temporal fascia along the border of the zygoma and saw through the bone as closely as possible to the frontal process of the malar bone anteriorly, and the temporo-maxillary articulation posteriorly. Turn the fragment with the attached masseter down. Pass a director beneath the temporal muscle and divide its fibres close to the coronoid process, the muscle with the temporal fascia then being pushed up. With a slender blunt raspatory dissect along the posterior surface of the maxillary bone until the prominent spine at the corner of the pterygoid ridge can be distinctly felt. Internal to this the superior maxillary nerve can be readily caught with a strabismus hook. The nerve being drawn forward is to be divided

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close to the foramen rotundum and then afterward close to the infra-orbital foramen and the piece removed. The deep temporal artery was ligated as a precautionary measure, but this was probably unnecessary. The parts were then replaced, the bone sutured with wire and a drainage tube inserted. The results in the case operated on were very satisfactory.

Cases of Cholecystotomy, with some Remarks upon the Technique of the Operation.

Cabot, in *The Boston Medical and Surgical Journal* of December 8, 1892, describes eight cases of this operation, and gives his methods of operating. In order to facilitate the extraction of an impacted stone he has devised a wire loop, the outer surface of which is smooth and the inner rough; in this loop the stone is caught and withdrawn. To divide the duct wall he uses a small hook sharp on its concave surface. The point of the hook is worked through the overlying wall down to the stone and then by drawing it along a slit is made long enough to allow the stone to escape. If adequate drainage is provided for the bile, the cases in which openings are made into the deep-lying ducts do well, and the bile does not exert any very irritating action upon the peritoneum with which it comes in contact. When the gall bladder can be drawn to the surface it is preferable to stitch it to the peritoneum rather than to the skin. In some cases the cystic wound may be closed and secured against the under surface of the abdominal wound and so guard against the danger of an escape of bile into the peritoneal cavity.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Treatment of Chancroids by Heat.

Wellander (*Wiener medizinische Presse*, 1892) refers to the investigations of Boeckel stating that the virulence of chancroid is destroyed by a temperature of from 40° to 42° C.

He had himself seen three cases in which, in the course of an intercurrent febrile affection, soft sores healed without any local treatment. On the ground of this observation he was led to employ heat in the treatment of chancroids.

He places on the ulcers lead pipes similar to those of Leiter's coils, which are at one end connected with a reservoir of water at a temperature of from 50° to 52° C.; the other end is attached to a waste vessel underneath the bed. The pipes should be bent to correspond in form and to the locality of the ulcer, and should be covered with a layer of moist cotton before application. In its passage through the tubes the temperature of the water is reduced to 40° to 42° C.

In cases of small chancroids two days' treatment is sufficient, while large buboes only require three days application of the coils. Even at the end of one day the infiltration is greatly decreased, as well as the discharge. In all cases the virulent character of the sore was destroyed in two days.

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Digitalis in Pneumonia.

Strzover (*Meditzinskoiĕ Obozreniĕ*, Nos. 15 and 16, 1892) reports concerning the abortive treatment of croupous pneumonia by large doses of digitalis.

The preparation used was the infusion of digitalis leaves 2 vel. 4 : 200, simple syrup 30, a teaspoonful to be given every half hour, the whole to be taken in twenty-four hours.

In the writer's nine consecutive cases under this treatment, temperature fell on the day following the beginning of the treatment from 40 to 38° C., and the subjective phenomena markedly improved, the patient feeling practically well.

In the incipient stages the lungs became free from abnormal signs in a day or two, while in more advanced cases complete resolution was brought about on the seventh day.

In none of the cases were there any toxic manifestations.

Treatment of Erysipelas.

Winkler (*Therapeutische Monatschefte*, 1892) recommends painting the skin every three hours with the following: ℞ Tannic acid, 1.0–1.5; camphor, 1.9–3.0; ether, 8.0.

This removes the fever in a very few hours and a cure is effected in two or three days. In place of the above ℞ Camphor, 25.0; ether, 50.0 may be used.

This is to be brushed over the inflamed surface every five hours. Ringier has used the above formula with excellent results in lymphangitis, erysipelas ambulans and in mild cases of erysipelas of the extremities. In cutaneous diseases having an erysipelatoid character it has also proved a very useful combination.

To prevent deposition of the tannin Ringier uses the following: Alcohol, 5.0–6.0; tannic acid, 6.0–7.0; camphor tincture, 50.0; ether, 5.0.

The Treatment of Cystitis and the Intra-Vesical Injection of Iodoform Ether Oil.

Okev-Blom (*Annales des Maladies des Organ-Urinaire*, 1892,) reports favorably the use of injections of iodoform ether oil (1 : 7 : 7) in cases of acute and chronic cystitis.

With the instillator of Guyon from one to six cubic centimetres are injected, and may be repeated every second or third day.

The pain and the frequency of urination are generally much improved after the second injection.

The best results are obtained in cases of acute gonorrheal vesical catarrh.

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OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

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Syphilis and Puerperal Convulsions.

Lang (*Archives de Tocologie et de Gynécologie*, November, 1892) had a case of puerperal eclampsia in a syphilitic subject, in which there was complete coma between the fits. The child was spontaneously expelled, and both mother and child died. This case suggested to Lang a study of the statistics showing the frequency of simple albuminuria in the pregnant in general and in syphilitic pregnant women, and the frequency of albuminuria with casts in the same two classes of patients and in puerperal eclampsia. The percentage of affected cases reported by Wieger, Galabin, Olshausen, Ingerslev, Hiredoyen, Leopold and Meyer is the following:

Simple Albuminuria.

Pregnancy in general, average	3.4
Pregnancy with syphilis, "	5.55

Albuminuria with Casts.

Pregnancy in general, average	1.5
Pregnancy with syphilis, "	2.5
Puerperal convulsions	88.0

Lang is suspicious as to the low percentage of albuminuria with casts in syphilis complicating pregnancy as contrasted with simple albuminuria in syphilis similarly complicated, for it is the former kind of change in the urine which is especially frequent in syphilitic patients in general. The percentage in question will probably prove too low. From the above statistics and from other sources he concludes: (1) That syphilis predisposes to albuminuria and nephritis; (2) that albuminuria of pregnancy is more frequent in syphilitic cases; (3) that in syphilitic cases the albuminuria is more frequently of the type seen in eclampsia; (4) that syphilis is apparently a predisposing and an aggravating cause of eclampsia.

Convulsions at the Sixth Month of Pregnancy.

Puech (*Nouveau Montpellier Médical*, No. 31, 1892) reports the case of a primipara, aged 23, whom he treated for eclampsia in the sixth month of pregnancy. There was no apparent tendency to delivery. She was kept under chloroform for three hours, and every time the administration was slackened the convulsive movements began. After this, a severe convulsion set in, followed by coma, insensibility becoming profound. Free venesection from the arm was practiced, with an immediate bettering of the patient's condition. Respiration became less embarrassed, and an hour after the bleeding the temperature had fallen from 103.6° to 101° F. Chloral was given and the patient steadily improved, the albumin nearly disappeared from the urine, the patient regained her senses and the fetal heart sounds were found to be still audible. At the time the report was made there seemed every chance that the patient would continue her pregnancy to term.

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Milk Fistula in Pregnancy.

Cholmogoroff (*Centralblatt für Gynäkologie*, No. 38, 1892) notes the rarity of the free and continuous discharge of milk from fistulæ in neglected mammary abscesses. The complication is especially serious, as a milk fistula is hard to cure, and often discharges milk in such abundance as to weaken the patient. The discharge of milk diminishes or ceases, as a rule, on the occurrence of pregnancy. Cholmogoroff relates a case in which the contrary occurred. The patient was 24 years old, and, following the delivery of her fourth child, a mammary abscess formed, which she allowed to break of itself. Fistulæ formed and fresh abscesses developed; the secretion of milk ceased. Four months after, milk was found to flow from two fistulous tracts. Cholmogoroff found that she was six weeks pregnant. Fresh abscesses formed and more milk was discharged from the old tracts. Five weeks later the fistulæ were closed and the pregnancy was advancing favorably. The fistulæ were most successfully treated by the introduction of crystals of chloral hydrate. The process was attended with a smart burning sensation. One fistula closed after three and the two others after five daily applications.

Narcosis in Obstetrics.

Dührssen (*Berliner klinische Wochenschrift*, No. 15, 1892) states that an anesthetic is of great value from a diagnostic as well as a therapeutic standpoint. The patient is often much excited, and can be quieted by a few drops of chloroform, while certain important factors are being ascertained, such as the frequency of the fetal heart sounds. Often in primiparæ it is only by the aid of anesthetics that the obstetrician can assure himself whether the head has already entered the pelvic cavity. Anesthesia is valuable for the prompt diagnosis of occipito-posterior and transverse positions. In those explorations where the entire hand must be introduced into the cavity of the uterus, anesthetics are indispensable. Therapeutically, anesthesia is needed for turning, especially in combined and external version, for detaching adherent placenta, manual removal of ovum and membranes in abortion, reposition of impacted tumors during birth, the management of prolapsed foot in breech presentation, and turning in incomplete dilatation of the os in multiparæ. In irregular contractions of the uterus, chloroform often hastens labor. Dührssen considers sepsis a contra-indication for anesthetics, and deep or long-maintained narcosis as dangerous in cases of eclampsia. It should only be induced in such cases to facilitate rapid delivery by operation. Tetanus uteri is also a contra-indication. In acute anemia a very little chloroform will take effect. When chloroform is given Dührssen advises the obstetrician to get the patient well under, and then to leave the mask in charge of the midwife, who must, from time to time, pour a few drops into it.

Acardiacus Amorphus with a Heart.

Heller (*Virchow's Archiv.*, Vol. cxxix, p. 3, September, 1892) reports a case of this rare monstrosity. The mother was a 17-year old primipara. She was delivered of a healthy child, and to the placenta the acardiac was attached, resembling a lump of fat. It was of the amorphus variety, as there was no trace of limbs and no properly developed thorax or abdomen. There was a trace of hairy scalp; in the interior was a piece of bone. There were no intestines, but evidence of a little liver-tissue, and a sac-like cavity represented, in Heller's opinion, the pharynx, esophagus and stomach, but there was no mouth. He is sure that a

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small piece of fatty tissue, of about the size of a pea, represented the heart. It lay against the rudimentary esophagus, and connected to it was a bundle made up of blood vessels. It contained several cavities. Heller admits that actual proof of the nature of this fatty body is impossible, and observes that Ahlfeld has recorded fourteen cases where a rudimentary heart was found in an acardiacus; but in the variety amorphus this phenomenon is least probable.

Spontaneous Healing of an Intra-Partum Rupture of the Uterus.

Dr. Richter (*Deutsche medicinische Wochenschrift*, November 10, 1892) reports a case of uterine rupture to which he was called by a midwife on account of cessation of the pains. The patient had, during constant spasmodic pains, suddenly vomited and become unconscious. The pains ceased, and the head gradually receded and disappeared. Examination showed a protruding, soft abdomen above, and to the left a foot could be plainly felt, and appeared to be the right one. The vagina was empty and promontory could be felt with the end of the middle finger —measured 8½ cm. After thoroughly antisepticising the hands and woman's genitals, Richter performed version and extracted an asphyxiated child. There was little bleeding. Placenta was retained and found, on introduction of the hand, loose in the uterus. In the left anterior parts of the uterus a wound was found, through which three fingers could be passed into the abdominal cavity.

Richter placed a sand-bag, weighing two pounds, upon the abdomen, administered ergot and opium, and proscribed vaginal douches. Two months later the woman was still weak, but entirely recovered.

A Rare Indication for Craniotomy.

Koettnitz, of Zeitz (*Deutsche medicinische Wochenschrift*, November 10, 1892) was called by a midwife to deliver the second of a pair of twins, the first having been born six and one-half hours before. The patient was 43 years old and a XI-para. She had twice before given birth to twins. On examination, Koettnitz found that both feet could be felt in the uterine os, near them a hand, and to the left side a part of the head. The uterus was strongly contracted and of ovoid form; the fundus was to the right; the ligamenta rotunda felt like tightly stretched cords. On the left side of the abdomen the head formed a perceptible hump.

Attempts were made to bring down a foot and push up the head, at first in the dorsal position, then on the side, in knee-elbow posture, and finally, in deep chloroform narcosis, upon the side. It was impossible to move the fetus, and, as rupture of the uterus was threatening, and the child in the meantime had died, Koettnitz decided upon perforation of the skull and cranioclast extraction, which he performed in dorsal decubitus. The child's weight was estimated at 6¼ pounds; the living twin, about 6½ pounds. The puerperium was normal.

Concerning the Course of Cholera in Pregnancy, and its Influence upon Labor.

Klautsch, of Halle (*Münchener medicinische Wochenschrift*, November 29, 1892), during the cholera epidemic in Hamburg, observed ten cases of cholera occurring in pregnant women—one at the second month, one at the third, two at the fifth, one at the seventh, four at the eighth, one at the ninth. Of these one died undelivered, one after imperfect abortion at the seventh month, three after partus prematurus, one at the fifth, and two at the eighth month. Three recovered and were

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discharged with living product in utero, one after abortion at the eighth month of a dead product, and one after abortion of a living viable child.

During the course of the disease the mother usually perceived violent motions of the fetus until the stage of intoxication was reached, when the movements ceased. Klautsch believes this to be probably because of the enormous loss of water by the cholera stools, and consequent lowering of the blood pressure, the oxygen being thereby carried to the uterus in reduced quantity, and placental breathing being thus reduced in energy. A further etiological factor has been disclosed by Slavjansky, in disease of the placenta fetalis, in which the epithelial covering of the cells is so strongly changed that at points only a finely nuclear mass, instead of the former, is present. The important physiological rôle which this epithelium has to perform in the respiration of the fetus, lying between the blood of the mother and that of the child, makes it easily to be understood that its disease must affect unfavorably the intra-uterine respiration. Premature separation of the placenta from the wall of the uterus, from hemorrhage between them, first described by Tipjakoff, was observed by Klautsch in one case. No traces of the comma bacillus were found in the blood of the fetus. The expulsion of the fetus followed in a short time after its death. The causes of the rapid expulsion were:

(1) The dead child acting as a foreign body, in one case.

(2) A diseased change in the endometrium, endometritis decidualis hemorrhagica Slavjansky).

(3) The temperature fluctuation, which was very marked.

After expulsion, the uterus involuted well. In only one of Klautsch's cases was there a slight after-bleeding ex atonia uteri.

GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

The Curette in Obstetric and Gynecological Practice.

John G. Cecil (*Medical and Surgical Reporter*, January 14, 1893), referring to the curette, remarks that the good results that may be had from its use are so manifold and great, and so far outweigh the dangers, "that to enter a plea for a place for it in the armamentarium of the obstetrician and gynecologist would be a work of supererogation." The sharp curette is the instrument spoken of, the wire curette being almost useless. With proper antiseptic precautions and a little practice in its use, there are no dangers to be feared from the employment of a sharp curette.

The author advocates the technique of curettage which is suggested and practised by Pozzi. These measures embrace a bath for the patient some hours before the operation, and thorough cleansing of the region with soap and water, and then with bichloride of mercury solution, 1:2000. Three injections of sublimate solution must be given on the day of the operation—two at intervals of an hour and

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one just at the moment of operating. In case there is need for disinfection of the uterine cavity as well as of the vagina, as occurs from malignant diseases of the interior of the womb, the irrigation had better be made intra-uterine, and it is to be remembered that gynecological cases will tolerate a much stronger solution of sublimate than obstetric cases will stand. While the pain inflicted is not severe enough to require anesthesia, it is rather more satisfactory to use an anesthetic.

It is essential that the cervical canal be dilated sufficiently to allow the easy introduction of the curette and the escape of all tissue which is scraped away. For the purpose of dilatation the graduated or steel dilators are recommended. Where constant disinfection of the field of operation seems desirable, this can be accomplished by filling the speculum with sublimate solution and elevating the patient's hips sufficiently to allow the fluid to enter the uterine canal. After systematically scraping the entire surface of the interior of the uterus, a hot antiseptic douche should be given, and all fragments washed away. An application of a mild caustic may be made or the cavity packed with iodoform gauze. Three or four days' confinement to bed is a desirable measure to insist upon even in the simplest cases, although this is not necessary, as patients are frequently curetted and allowed to walk or ride considerable distances almost immediately afterward.

Speaking of the use of the curette in cases of "uterine catarrh," the author says his experience has been uniformly successful. The cutting in such conditions must be deep enough to remove the diseased follicles to their entire depth. Hemorrhage due to the presence of submucous fibroids can be promptly checked by the use of curettage. The mucosa must be removed, for it is chiefly due to engorgement and irritation of this membrane that the hemorrhages occur.

The author is not yet satisfied to disregard the teaching that acute and also chronic inflammations of the uterus and its appendages are contra-indications to the employment of curettage, for experience has demonstrated that such conditions occasionally become suddenly aggravated upon slight provocation, and cause very serious results.

Vaginal Hysterectomy for Cancer.

W. F. McNutt (*Medical and Surgical Reporter*, January 21, 1893) reports five cases of uterine cancer in which the uterus was removed per vaginam, with a successful result. One patient was in excellent health nine months after operation.

Of the five cases all were married; four had borne children and one miscarried. The broad ligaments were clamped with compression forceps in four cases, and remained *in situ* for about forty-eight hours. A vesico-vaginal fistula appeared in one case about four weeks after operation. One patient was 67 years old and had a cystic ovary as large as a cocoanut, bound down by numerous and firm adhesions. The double operation of hysterectomy and ovariotomy occupied nearly three hours, but the patient rallied and convalesced without any unfavorable symptoms.

Manipulation of the Uterus the Cause of Rupture of Pyosalpinx.

The *British Medical Journal* refers to two cases recently reported by Rochet (*Journal d'Accouchements*) which show the danger of manipulating the uterus when the tubes are the seat of suppurative inflammation. In one of the cases the use of the curette was followed by rupture of a pyosalpinx.

The other case was one of pregnancy of about six weeks' duration associated with pyosalpinx, which ruptured soon after an examination had been made per vaginam.

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The uterus had expelled its contents prior to the rupture of the tube, and it is probable that the combined action of the digital examination and the contractions of the uterus at the time of the abortion were sufficient to burst the tube.

Abdominal section was performed the day following the rupture, and pus poured from the incision. The abdominal cavity was irrigated, and drainage established, but the patient died the next day. Rochet believes that rough examinations, rapid dilatation of the uterine canal, curetting or any other operation which causes traction upon the uterus and its appendages is liable to cause rupture of a pyosalpinx, and thus be the cause of certain mysterious deaths.

Cancerous Infection During Operation.

Schoff (*Wiener klinische Wochenschrift*) describes a case of vaginal hysterectomy for uterine cancer limited to the fundus. The uterus being very large, necessitated the incising of the vulva for its removal. About three months after the operation cancerous nodules were found in the line of the incision in the vulva, while the fornix and surrounding portions of the vagina remained free from disease. Four months later the patient died, and cancer of the left lobe of the liver was discovered.

The conclusion forced upon the reporter is that the vulvar incisions were directly infected by the cancerous mass or the instruments used at the time of the operation.

Antiseptic Cataphoresis in the Treatment of Diseases of the Uterus and its Appendages.

Wallace A. Briggs (*Medical News*, January 21, 1893) describes his method of employing antiseptic cataphoresis, and claims that it is superior in its results to the use of the applicator, the curette and the usual electric treatment. He says that the applicator is a useless and dangerous instrument in the uterine cavity. Chronic inflammatory diseases of the uterus and its appendages (having, in the majority of instances, a microbic origin with the organisms penetrating the mucous and the sub-mucous tissues), require for their treatment thorough disinfection, without necessarily destruction of tissue. The applicator fails to disinfect, and the curette, while it is effective in the treatment of many cases of uterine inflammation, is open to the objection of destroying tissue. Antiseptic cataphoresis possesses all the advantages of the usual electric treatment plus antisepsis, not only of the uterine cavity, but also of the endometrium itself, and in uterine fibroids the possible regressive influence of medicinal remedies on the neoplastic tissues. "In these diseases it should displace the applicator, injections, caustics, bougies and all other forms of intra-uterine treatment, with the rare exception of curettage." Briggs has used several antiseptic solutions or electrolytes, of which iodine in varying ratio, either in combination or in solution, is an essential constituent. The following solutions are found to be satisfactory: beechwood or camphor-creasote, 10; iodine, from 1 to 2; beechwood or camphor-creasote, 10; sodium iodide, 0.5; iodine, from 1 to 2.

In making an application it is necessary to thoroughly cleanse the vagina and cervix, and to dilate the cervical canal if it is too narrow for the ready introduction of the applicator and the escape of the uterine secretions, redundant electrolyte and electrolytic gases.

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The instrument used for the intra-uterine treatment consists of a combination of an intra-uterine syringe, applicator and electrode. This is wrapped with a thin layer of cotton and dipped in the solution, and then carried up to the fundus of the uterus. The current is turned on slowly and increased as desired. The electrode remains in situ for about five to ten minutes, being swept from one corner to the other. During the passage of the current the electrolyte is injected, drop by drop, until from five to ten minims have been introduced.

If salpingitis be secondary to disease of the uterine mucosa, it follows that the above treatment will be beneficial in cases of tubal inflammation, and it is found by experience that negative cataphoresis is to be preferred to positive cataphoresis in these cases, because the former promotes drainage and depletion more actively.

Antiseptic drainage and depletion of the uterus diminish the inflammatory swelling about the orifices of the tubes, and thus facilitate their drainage and consequent restoration to a healthy condition. A word of caution is given in reference to the employment of this kind of treatment in cases of cystic salpingitis, whether purulent or not, and the advisability of surgical measures must be considered.

Regarding the efficacy of antiseptic cataphoresis in the treatment of uterine fibroids, the author says that one of the chief benefits of Apostoli's treatment consists in the cure or relief of a coincident metritis. This, which is probably the so-called symptomatic cure, is hastened by antiseptic cataphoresis.

In addition, it is not at all improbable that by its means remedies may be introduced that will have a regressive influence on the neoplastic tissue. While the author has used this method in practice sufficiently to be convinced of its superiority, he is not yet enabled to speak positively as to how much it may accomplish.

The Operative Treatment of Malignant Diseases of the Uterus.

W. E. Porter (*New York Medical Journal*, December 17, 1892) speaks of the importance of the general practitioner familiarizing himself with the earliest signs of uterine cancer, as it is to him the patients usually go while the disease is incipient and curable.

It has been the author's experience at the New York Cancer Hospital to meet yearly with large numbers of women who have been referred for operation for malignant disease of the womb, in whom the disease had advanced too far to be cured, and who had been treated for a long time for "ulceration" or "inflammation."

Many of them have not even been subjected to a vaginal examination, while others have been imposed upon by charlatans, and wasted months in trying various plasters and salves.

In referring to the symptoms of malignant diseases of the womb, the author says: "Probably the earliest symptom to manifest itself, and the most constant in the majority of cases, is hemorrhage." This may appear as menorrhagia or as metrorrhagia, and it may be preceded or accompanied by a glairy, muco-purulent discharge. The bleeding (which may be slight at first, gradually increasing in severity, or profuse from the first), may be considered as due to disturbances in the circulation of the affected part during the early stages of the trouble, but during the later period is due to advanced ulceration and destruction of tissue.

Increased bleeding about the time of the menopause must be regarded with suspicion. Carcinoma of the body of the uterus is apt to cause free hemorrhage after the climacteric, or late in menstrual life. Watery, leucorrheal discharges are also significant, and during the early existence of cancer comes from exfoliation of

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surface epithelium and indifferent tissue covering the morbid process. Pain is not to be relied upon as a constant symptom during the early stages of these troubles.

Supposed cases of sciatica, however, developing after the establishment of the menopause, should be regarded with suspicion, as, occasionally, radiating pains in the thighs will be among the earlier symptoms. Digestive disturbances, anorexia with more or less persistent vomiting from chronic gastritis and constipation, are likely to exist, although the general health does not suffer markedly until the degenerative changes are well advanced. The operations are either radical or palliative in their aim. The radical operations are high amputation of the cervix, vaginal hysterectomy, abdominal hysterectomy, or a combination of these two; hysterectomy by Zuckerkandl's method or by Kraske's sacral method. The palliative operations consist in high amputation of the cervix and in curettement.

The author does not have confidence in the high amputation of the cervix as a radical operation, and claims that it should never be performed when the uterus can be removed. The method is unsafe, because it is impossible to know just how far the disease has invaded the womb. The low mortality rate of this operation can soon be attained in total extirpation of the uterus by increasing experience and familiarity with the technique of the latter operation. An analogy is drawn between the uterus and the mammary gland as the seat of malignant disease. In the operation for removal of cancer of the breast the entire gland is removed and oftentimes the axillary glands also, for fear of transmission through the lymphatics, and it seems quite as necessary to use the same degree of caution in operating for the removal of uterine cancer.

In speaking of curettement, the employment of the dull instrument is condemned as utterly useless; but when the operation is performed by the use of the sharp instrument, much improvement results for a time, and such treatment must be repeated whenever bleeding or pain become troublesome symptoms.

The paper is concluded by the following summary of the author's views:

(1) A knowledge of the gross and microscopical appearances of malignant growths of the uterus is essential to their proper diagnosis and operative treatment.

(2) A thorough knowledge of the symptomatology, especially in the earlier stages, should be attained by every practitioner of medicine, and the slightest carcinoma should be subjected to physical examination and consultation with a surgeon.

(3) A microscopical examination should be made of any tissue simulating malignancy.

(4) The entire uterus should be removed in every case of malignant disease when there are evidences of the growth being confined to the uterus, and the sooner the operation is performed the greater are the chances of immediate success and ultimate cure.

(5) Vaginal hysterectomy is the operation which should be resorted to in all cases where the uterus is small enough to be removed per vaginam, and in its performance ligatures should be applied to the larger vessels to the exclusion of clamps.

(6) In removing large tumors by abdominal hysterectomy, the ecraseur should be applied and the bulk of the tumor removed before the ligatures are applied.

(7) The operations performed by Zuckerkandl and by Kraske, on account of their formidable character, should be performed only in exceptional cases, if at all.

(8) When the disease has extended to the parimetrium, or extensively into the vaginal wall, in no case should hysterectomy be done.

(9) High amputation should be performed only as a palliative measure.

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(10) In curettement for cancer of the uterus the sharp curette should be employed.

(11) After an operation for malignant disease the patient should be kept under observation for as long a period as possible.

PATHOLOGY

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Uncertainty of Detecting the Bacillus of Typhoid Fever in Suspicious Drinking Water.

A. C. Abbott, in the *Medical News* for December 10, 1892, speaks of the difficulty of detecting the typhoid bacillus in drinking water, because of other similar organisms, and because of the variety of appearances which the typhoid bacillus itself presents at different times. The following points are of greatest value in diagnosticating the bacillus:

It is motile when suspended in fluids, and moves by the presence of flagelli.

Spores are never formed.

Gelatine is not liquefied by its growth.

The growth on potatoes is generally invisible, but may sometimes be yellowish.

Milk is not coagulated by it.

Litmus milk (blue) is not changed.

It never causes fermentation of glucose with the production of gas.

Indol is not formed.

The production of carbonic acid gas is less than the amount produced by similar organisms.

A New Method for the Culture of Diphtheria Bacilli in Hard-boiled Eggs.

Wyatt Johnston, in the *Medical News*, December 10, 1892, suggests a modification of Sakharof's method for the cultivation of diphtheria bacilli, which makes unnecessary the use of test tubes and ordinary media. Hard-boiled eggs are tapped and shelled with forceps, so as to leave a smooth, glistening, moist surface. With a platinum wire, or an ordinary needle, or a bit of silver suture held in an artery forceps, the diphtheritic membrane is touched and the instrument drawn lightly three to six times across the exposed white of the egg. To guard against contamination the egg is turned upside down in a common egg cup previously sterilized by allowing a flame to enter it for a second or two. The egg and cup can now be wrapped in paper for shipment. The careful aseptic precautions so generally needed in bacteriology are not needed in studying the diphtheria bacillus, because its growth is so rapid as to outstrip contaminating organisms. The appearance of the colonies grown in this way is exactly the same as when grown upon blood serum. If the specimen is to be conveyed some distance or shipped to a laboratory, the box in which it is packed can be kept warm for a time by packing in it a bottle of hot water.

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The Parasitic Origin of Cancer.

M. J. Loudakewitch, in the *Annales de l'Institut Pasteur*, combats the idea of Virchow that the parasites described by recent observers have little to do with the etiology of cancer, and maintains that the structures he describes in the cancer cells are true parasites, and distinguishable by certain characteristics from various degenerated products and altered cells. In 110 cases which he has studied he constantly obtained the same results, and thinks that the young parasite passes into the substance of the cell, grows slowly, becoming surrounded by a more and more distinct capsule. The nucleus is pushed to one side and flattened about the parasite. The protoplasm of the cell is distended and becomes homogeneous. At last only a thin membrane surrounding the parasite is all that remains of it. When this is broken through the parasite is set free, and its protoplasm divides into smaller bodies—spores?—which make their way into the neighboring cells, where the process recommences, so that a single cancer cell may give rise to contamination of many around it. The products of metabolism are also thought to have some influence in producing the growth.

Artificial Cultivation of Seat-worms.

Epstein, in the *Jahresbuch für Kinderheilkunde*, Bd. xxxiii, S. 287, describes his studies of the common seat-worm, confirming the well-known fact that for the development of these parasites no intermediate "host" is necessary, as in tape-worms. He has succeeded in cultivating the worms experimentally by placing small quantities of ova-rich stools in a glass dish. When such are exposed for long periods to moisture and kept in the dark, the development of the embryos is retarded, and does not go on to perfection before five months have passed. Indeed, at the end of this period only a few were found. On the other hand, if the cultures are placed in the light and heat of the sun, well-developed embryos can be discovered in five weeks. A certain amount of moisture is essential to the development of the eggs. In a stool quickly dried by warming, the eggs remain unaltered for many months. Free admission of air is also essential to success.

The experimentally developed embryo were given *per oram* to several children in whom the pre-existence of seat-worms was precluded by careful and oft-repeated examination. After the ingestion of the embryo they all became infested by the parasites. Subsequently santonin was administered as a curative.

A New Distoma (Distoma Libiricum) in the Human Liver.

K Winogradaw, in the *Berichte der k. Universitat zu Tomsk*, 1891, describes briefly this new variety of hepatic parasite which he found both times in day-laborers, once in the gall bladder, and once in a small bile duct. Numerous eggs were found in the bile. The worm is very similar to, if not identical with, those found in the livers of cats, and described by Kuljabko. The parasites also resemble *distoma choledochum* and *distoma longissimum* of older description.

Primary Endothelial Cancer of the Pleura.

A. Fraenkel, Verhandelungen des 11 Congresses für Innere Medicin gehadten zu Leipzig, 1892, published in the *St. Petersburg Med. Wochenschrift*, November, 1892, describes a curious and interesting case of endothelial cancer affecting the pericardium and left pleura, which were much thickened but without nodulations or excrescences. The inner surfaces were covered with tightly adherent lymph.

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Upon microscopical examination the membranes showed connective tissue growth, poor in cells, having dilated lymph spaces filled with polymorphic, generally cubical cells, with vesicular nuclei, and presenting many epithelial characters. These cells were piled upon one another irregularly, but at times allowed a free lumen, of very small size, to be observed in the centre.

Degenerations and cellular enclosures, etc., which are so common in carcinoma, were not observed. Without doubt the new growth was from the endothelial coating of the lymph spaces.

Amyloid Substance.

N. P. Krawkow, *Centralb. f. d. med. Wiss.*, September 29. This investigator observes that while on the one hand amyloid substance gives an undoubted iodine reaction, illustrating a change from an albuminous to a starchy character, on the other hand it differs from other degenerations in not having a physiological prototype. Experimentally, he discovers that *chitin*, a substance widely distributed in the animal kingdom, appearing, for instance, as the supporting skeleton of insects, will give an identical reaction. After causing pulmonary embolism with fragments of chitin, he was able to demonstrate the particles by the amyloid test. He also found that when amyloid substance is boiled twenty hours with concentrated potassium hydrate all but a little dissolves. Decanted, and treated with water, alcohol and ether, this subsequently shows exactly the color reactions of chitin. From this the author concludes that amyloid is a combination of albumen and chitin, and, therefore, not an exclusively pathological product, but produced in physiological conditions, especially by the lower animals.

Psorosperms in Squamous Epithelioma.

J. Jackson Clarke, Proceedings of the London Pathological Society, *Lancet*, December 31, 1892, p. 1496, found in squamous epithelioma of the septum of the nose from a man, aged 82 years, abundant psorosperms. The following were points of interest about them:

(1) No coccidia with special stain resisting capsules were discovered.

(2) In sections of the tissue, hardened in Müller's fluid, large cells, chiefly oval in shape, staining deeply in carmine, and but slightly with acid hematoxylon were present. In the epithelioma the form of some of these cells was greatly modified by pressure of the surrounding cells. These cells, which had been hitherto regarded as degenerated epithelial cells, were unmistakably psorosperms, the idea of degeneration being absolutely negatived by the beautiful nuclear figures presented by some of the peculiar cells and by clear evidences of the biological processes described below.

(3) The large cells, at a certain period of their existence, showed an extension to the nuclear network, which eventually filled the whole cell, and this then divided into a great number of ameba which were set free by rupture of the capsules of the mother cells, if it had not disappeared already. Conjugation previously to the ameba formation was described.

(4) There were many large psorosperms lying within epithelial cells, the parts of which adjoining the parasites were modified into capsules. In sections stained with picro-carmine, and mounted in glycerine, these capsules were seen to possess a beautiful radiated structure to the protoplasm of the psorosperm, a semblance which on closer examination disappeared. . . . Most writers fail to distinguish the ameba from leucocytes. He stated that the ameba stage of the parasite's

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existence afforded the key to the malignant character of the disease. He detected clear evidence of the following:

(1) A single psorosperm, or one resulting from the conjunction of two or more became changed by the formation of a usually delicate but sometimes coarse reticulum, which extended outward from the nucleus or nuclei till it filled the whole cell.

(2) The reticular plasmodium, usually surrounded by the capsule, consisting of the dead and disturbed host-cell, broke up into rounded segments, which kept the reticular structure, and stained slightly purple with acid hematoxylon.

(3) Within some of these daughter psorosperms fine filaments of chromatin appeared, while the reticular structure became less obvious in the rest of the cell. The ameboid cells were set free by rupture of the capsule (when present). They gave evidences of multiplying by division, and were easily distinguished from leucocytes in specimens treated with acid hematoxylon.

(4) The ameboid parasites made their way in vast numbers into the connective tissue spaces beyond the epithelial growth, causing separation of columns of epithelial cells, multiplication of the points of epithelial ingrowth, and detachment of small groups of epithelial cells. A considerable amount of inflammation was caused by the invasion of the vascular tissues by the ameba, with extension of the growth and formation of new bloodvessels.

(5) Most of the ameba disappeared, and the inflammation subsided, a small proportion of the parasites entered epithelial cells, where they could be detected.

A Simple Procedure for the Demonstration of Tubercle Bacilli in Sputum.

P. Kaufman, *Centralb. f. Bacteriol. u. Parasitenk*, 1892, Bd. xii, No. 4–5. The cover-glasses are prepared as usual, and stained with hot carbol-fuchsin. After this they are washed in boiling water from one to five minutes. By this washing the other microörganisms are decolorized, and a clear, beautiful picture remains.

The bacilli are not injured or altered in form by this method, as in those in which strong acids, etc., are used. The method is not recommended for sections of tissues, because of the swelling and coagulation which the boiling water causes. The simplicity of the method certainly recommends it to the practitioner.

The Influence of Wine upon the Development of Typhoid and Cholera Bacteria.

Alois Pick (*Centralb. f. Bakteriol. u. Parasitenk.*, 1892, Bd. xii, No. 9). The observer found that after a short action of a mixture of equal parts of wine and water a remarkable diminution in the number of typhoid bacilli occurred, and that after twenty-four hours no more typhoid bacilli could be found.

After ten to fifteen minutes' immersion in stronger red or white wine, no cholera vibrios could be found. The value of these observations is apparent in cases of epidemics, when a mixture of wine and water standing in the vessel from which it is drank would form a perfectly harmless beverage.

The Chemotaxis of Leucocytes and Immunity.

J. Massart (*Annales de l'Institut Pasteur*, No. 5, 1892), after numerous series

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of experiments upon the chemotactic influence of anthrax, hog-erysipelas, diphtheria, chicken-cholera, pyocyanogenus and vibrio Metschnikowi in virulent as well as in attenuated conditions, concludes:

(1) The characteristic action of attenuated cultures is greater than that of the virulent, except with diphtheria.

(2) Another poisonous substance than that which the leucocytes is also produced and may exceed it.

(3) The chemotactic and toxic substances are different.

(4) Through immunization the leucocytes become "educated," and attack the virulent as well as the attenuated microörganisms.

MISCELLANEOUS.

NUMBER OF STUDENTS IN THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE number of students in attendance upon the lectures in the medical department of the University is larger this year than it has ever been before in the history of the school, and, we believe, larger than has ever assembled, in one year, in any medical institution in America.

In 1891 there were 569 entries, in 1892, 691, and this year the grand total reaches 846.

The number of students in the different classes is as follows:

First year	318
Second year	262
Third year	251
Fourth year	13
Special	2
Total	846

CORRESPONDENCE.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

GENTLEMEN:—As to article "*In re* Gum Lancing," by Forcheimer, in your December number, I would suggest that an experience of forty-seven years has presented to me numerous cases in which

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I have lanced the gums of infants, to control disturbances incident to or accompanying difficult dentition, in no instance with any bad effect, and generally I have found that all the fever and fretfulness disappeared as by charm, without the use of any adjuvant whatever to the gum lancet; thus extinguishing all the symptoms and relieving the infant from this source of trouble. I must leave the evidences of inflammation discoverable by post-mortem inquiry to microscopical anatomists, for such is the confined nature of the teeth, impacted as they are in the alveoli, that mechanical pressure alone must exclude evidences of inflammation to any but microscopical inquiry.

A curious case in related in Francis Condie's treatise on the diseases of children, where a surgeon, desirous to ascertain the condition of the alveoli in a case where a child had apparently died from difficult dentition, made a free incision through the gums, whereupon the child opened his eyes, the shroud was removed from the body, and by careful and persevering attention the child's life was saved.

Very respectfully,

JOHN M. LANGHORNE.

UNIONTOWN, ALABAMA.

To the Editors of the UNIVERSITY MEDICAL MAGAZINE:

GENTLEMEN:—If you think the following is of interest to the readers of the UNIVERSITY MEDICAL MAGAZINE, please insert it:

"The Anglo-American Medical Society of Vienna gave a Thanksgiving dinner, which was very successful; about 125 were present and all enjoyed themselves at the Old Riedhof. Many excellent toasts were given, and it was declared the success of the season. The American colony of Vienna is, as it always has been, greatly indebted to Mr. Gordon for his kind efforts in their behalf."

Yours very truly,

JUDSON DALAND, M.D.

319 SOUTH EIGHTEENTH STREET.

BOOK NOTICES.

A TREATISE ON DISEASES OF THE NOSE AND ITS ACCESSORY CAVITIES. By GREVILLE MACDONALD, M.D. Second edition. London: Macmillan & Co., 1892.

Among the many books on this subject which have appeared within the last few years the present volume is, perhaps, the best,

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regarded from the standpoint of a specialist. As a text-book for the student or general practitioner it is, however, less satisfactory, hardly any attention being given to minor therapeutics, and nearly all the treatment suggested being decidedly heroic in character.

The physiology of nasal respiration is first very fully described, and several forms of ingenious apparatus illustrated. Among other points the facts "that the air in passing through the nose alone is completely saturated with moisture, and that consequently physiologists are in error when they tell us that the lungs exhale moisture;" and "that exchange of gases takes place to a certain extent in the nose as in the lungs," are satisfactorily proved.

In pathology the book is certainly hardly up to date. The dependence of chronic pharyngitis upon nasal disease, long ago noted in the published writings of the reviewer and others, is brought forward with some emphasis. Nasal polypi are very crudely considered, the author's idea of their pathology being apparently very vague, and the reader is left quite in ignorance of the pathogenesis of advanced rhinitis.

While the operative measures are well and fully described, the few and meagre suggestions as to milder treatment are sometimes startling; for instance, in the half-score lines devoted to nasal sprays, a pressure of *from thirty to forty pounds* is advocated, a force quite sufficient to cause alarming epistaxis and to seriously injure the parts. Depletion by plunging a tenotome "deeply into the swollen tissue" is recommended in certain cases of chronic rhinitis, but has been wholly abandoned by most American rhinologists as soon as tried.

In describing the use of cocaine the author sounds a much-needed word of caution, agreeing with the reviewer that "it cannot be too strongly insisted that this very powerful drug should always be used with extreme caution."

The chapter on the diseases of the ethmoid bone is one of the best in the book, and one of the best essays on the subject which has been written. In spite of his very radical turn of mind, the author warns against operative procedures in the roof of the nose, the dangers of cerebral disease and death from such procedures being brought prominently forward as they deserve.

Post-nasal growths are fully considered, and the section on operative treatment leaves little to be desired; milder measures do not, however, receive the consideration their great practical utility demands.

As a whole, although not well suited to the tyro in rhinology, the book is one of great value to the specialist, and deserves the praise—not justly due many modern works of the same type—of improving as one grows more familiar with it.

TEXT-BOOK OF NERVOUS DISEASES. Being a Compendium for the Use of Students and Practitioners of Medicine. By CHARLES L. DANA, A.M., M.D. New York: William Wood & Co., 1892.

Upon reading the preface of the above volume one of the first sentences which attracts the attention is the following: "I have tried

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to furnish a book which will be suitable for the student and practitioner and not valueless to the specialist." That Dr. Dana has admirably succeeded in this difficult task is amply confirmed by a perusal of the book.

To the student in particular the author supplies, to use a hackneyed phrase, a long-felt want. One of the great difficulties experienced in taking up the study of any subject is to know how to begin, and what is of special importance. Dr. Dana evidently had this fact in mind, and in addition to giving the reader useful advice as to what is requisite to secure a good foundation, adds a list of those diseases with which it is necessary to be thoroughly acquainted, although we would take exception to including among these diseases symptoms such as tinnitis, ptosis and others of like type.

The great importance of a thorough knowledge of anatomy and physiology is insisted upon, and upon these subjects, comprehensive, but at the same time concise, chapters are given. These chapters, as well as all others throughout the book, are remarkably well illustrated; most helpful diagrams being abundant. Several chapters are devoted to the definition of the various technical terms, and to the explanation of the various symptoms peculiar to nervous diseases and the methods of eliciting them. Previous authors have neglected to pay much attention to these subjects. They are given here with unusual clearness, and constitute a most valuable feature. The fact that one of the first duties of the physician is the prevention of disease is not lost sight of, attention being paid to the subjects of hygiene and prophylaxis, the whole being summed up in the pregnant sentence, "adults need to keep in mind but two words—moderation, exercise." To the general practitioner, needing a work for reference merely, the book presents the great requisites of clearness, fulness, and—it may sound paradoxical—brevity; but it is surprising what a large amount of information is compressed into the short, crisp and *readable* sentences.

The neurologist will certainly find much of interest and value in the book. While all may not agree entirely with the advanced pathology advocated, for instance that of epilepsy and chorea, still the author has excellent authority for his statements, and they must furnish food for thought. The therapeutics, as a rule, are excellent. A fuller description of the "Rest Cure" would be useful.

We are glad to see the following statements made under the treatment of epilepsy: "The first and essential rule of treatment is to take cases early and treat them vigorously from the start. Children who have had a few convulsions during the first three to five years of life should be treated as if they might develop epilepsy between the ages of ten or fifteen or earlier. When epilepsy is recognized in children the case should be treated constantly for at least three years after all attacks have ceased." If these rules were followed there would be fewer epileptics. The views held upon the surgical treatment of this disease are rightly, we think, conservative. It is not possible in the limits of this review to further comment in detail upon the many interesting and instructive statements scattered throughout the book. The thoughtful reader will at once notice them.

The publisher's part of the work is not on a plane with the author's, typographical errors are rather frequent, and the binding is very poor and unsubstantial. The illustrations are not always of the best work-

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manship. We heartily congratulate Dr. Dana upon the valuable addition he has made to neurological literature, and we predict a brilliant future for the book.

A TEXT-BOOK OF PRACTICAL THERAPEUTICS, WITH ESPECIAL REFERENCE TO THE APPLICATION OF REMEDIAL MEASURES TO DISEASE AND THEIR EMPLOYMENT UPON A RATIONAL BASIS. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College, etc. Third edition, enlarged and thoroughly revised. Philadelphia: Lea Brothers & Co., 1892.

The third edition of this work has just been issued, although it has been but two years since its first appearance. The general approval and hearty reception which the early critics of the book predicted has therefore been realized.

The general plan of the work differs from those on the same subject published in this country. The book is divided into four parts. Part I discusses general therapeutical considerations, which includes the mode of action of drugs, the methods of their administration, dosage, idiosyncrasy, absorption of drugs, their duration of action, their strength and reliability, indications and contraindications, combinations and incompatibilities and a list of drugs arranged according to their physiological actions.

The consideration of drugs occupies Part II. Each substance is taken up alphabetically. This arrangement facilitates reference, as it is not necessary to consult the index. The discussions are as brief as the importance of the various subjects will permit. The therapeutics and administration of each drug are given clearly and concisely. In the cases of poisons, the symptoms and treatment of lethal doses are given, including the proper antidote where such exists.

In Part III, remedial measures other than drugs and foods for the sick receive attention. Under remedial measures are included acupuncture, antiseptics, cold as a remedy, counter-irritation, disinfection, heat, intravenous injections, kataphoresis, leeching, rest cure, suspension, transfusion and venesection. The chapter on foods for the sick is brief, but will be found useful to the physician in arranging the dietary of his patients.

To the general practitioner the most attractive portion of the book will be Part IV. Here the various diseases are taken up alphabetically, and the most approved methods of treatment briefly described. In a few instances the measures recommended are not those most commonly advised to-day. For example, we read under burns and scalds that "by far the best dressing is lint, wrung out of a mixture of linseed oil and lime-water, equal parts." The modern surgeon has a very profound disgust for the old-fashioned "carron-oil." Again, the value of cauterization in chancroids, as here stated, may be fairly questioned. It seems to us that the danger attending less radical measures as here set forth are exceedingly improbable if the treatment is carried out on modern surgical principles.

The work has obtained a well-deserved place in medical literature which the present edition will certainly maintain.

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TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Vol. IV, 1892. 376 pages.

The usual amount of good and questionable material, of that which has come to stay and that which is still *sub judice*, is contained within this volume. There is much of a varied nature that could be commented upon; for instance, the statement on page 78, that the results obtained from the use of the drainage tube in abdominal surgery are better than those obtained without its use. Were we so inclined, we could mention eminent operators who do not, save very exceptionally, employ the drainage tube, even in "suppurative forms of pelvic disease," and whose results are of the very best. It is not so much a matter of drainage after such operations as it is of thorough irrigation after removal of the pyogenic membranes or pus sacs *at the time* of operation. These once disposed of with proper antiseptic precautions, the small amount of serous exudation that will inevitably follow will not be productive of trouble. Hysterectomy, vaginal and supra-vaginal, occupies a prominent place in the book, as would be expected from the *furore* attending that operation at present. It is very generally conceded now, possibly with one or two marked exceptions, that the intra- or sub-peritoneal treatment of the pedicle is the ideal, and Dr. Ross' statement that the operation thus performed is attended with little or no shock is absolutely correct. Properly managed, hysterectomy need not entail severer after-effects upon the patient than simple ovariotomy. Still, an operation of so much gravity should only be undertaken by surgeons of extensive experience to insure the most favorable results to patient and operation. The volume is filled with much that is interesting, and is an acceptable addition to the library table.

THE ANATOMY OF THE PERITONEUM. By FRANKLIN DEXTER, M.D., Assistant Demonstrator of Anatomy, College of Physicians, New York. With thirty-eight illustrations. New York: D. Appleton & Co., 1892.

The difficulty which students of anatomy experience in endeavoring to master the anatomical relations of the peritoneum is well known to all teachers in this branch of medicine. It was this fact that prompted Dr. Dexter to publish the work under review. The author states in the preface that "There is no way of obtaining a clear idea of the peritoneum except through a knowledge of its development." Following out this thought thirty-eight figures are represented, thirty-five of which are colored, showing sections of the embryo from its earliest stages throughout the many complex changes that occur before the development is complete. The figures are diagrammatic, which enables the reader to follow the different stages in the development with ease. The text is as brief as is consistent with clearness, and serves to explain the figures only. Many points otherwise difficult of explanation become at once apparent. For example, the reason of the distribution of the left pneumogastric nerve to the anterior surface of the stomach and the right to the posterior surface is explained. We learn also that the peritoneum is developed simultaneously with the intestine, and

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that the latter has not been pushed into the former, as a finger into a glove, as has been described.

The chief aim of the author has been simplicity, and in this he has succeeded without impairing the value of the book. Students in medicine, as well as physicians, will find this work of great assistance in understanding the anatomy of the peritoneum.

THE STUDENTS' QUIZ SERIES. HISTOLOGY, PATHOLOGY AND BACTERIOLOGY. By BENNETT S. BACH, M.D., Lecturer on Histology, Pathology and Bacteriology, New York Polyclinic.

This little book of 160 pages, published by Messrs. Lea Brothers & Co., Philadelphia, 1892, is one of a group of similar books comprehended by the "Students' Quiz Series," and evidently written to enable students to "cram" for examinations. We find it our duty to discourage any writing which, putting aside all thoroughness and explanation, strives only to give the essentials of a science with the above object in view. We are bound to acknowledge the book free from errors of magnitude, but at the same time must declare its worthlessness for the practitioner for whom, as well as the student, the title page tells us it is written. The *real* student will also find it useless, as he will absorb more from lectures and laboratory than it contains, hence its only mission will be to the careless and negligent, supplying them with the means of enjoying more idleness—a thing we most heartily condemn.

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UNIVERSITY
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APRIL, 1893.

SOME UNUSUAL TYPES OF PNEUMONIA.[1]

BY WILLIAM PEPPER, M.D., LL.D.,

Professor of Theory and Practice of Medicine, University of Pennsylvania.

GENTLEMEN: I am fortunately able to show you to-day several cases of pneumonia which are interesting from the fact that they present certain features not ordinarily met with, and that the outcome has been most happy in spite of their aberrant features, or in two of them perhaps because of these peculiarities. The history of the first case is as follows:

P. B., aged 16, white, native, of good family history; has been a healthy boy until the present illness, which began on the 27th of December, when he took a cold and went to bed with great shortness of breath, pain in the right side, and a dry, hard cough. He was brought to the hospital three days later, and the following signs were discovered: The right chest seemed slightly distended, especially posteriorly and at the base. Over this area percussion gave marked dulness, and the fremitus was increased. The same signs were less marked over the middle lobe. On auscultation the respiratory sounds were weak, but distinctly high-pitched and bronchial in nature. There were a few râles, but these were of a subcrepitant or bubbling nature. On the opposite side there was a hyperresonant note throughout the whole extent of the lung, and the breath sounds were distinctly exaggerated. The temperature on admission was 103⅘°; pulse, 108; respirations, 40.

During the first three days in the hospital his temperature varied from 104° to 100°, showing considerable irregularity. On the 2d of January it began to fall rapidly and reached the normal on the evening of the 3d, since which time it has continued normal. The respirations decreased more gradually. There were at no time marked nervous

[1] A Clinical Lecture delivered at the Hospital of the University of Pennsylvania.

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symptoms nor disturbance of sleep, nor discomfort of any kind, excepting decided dyspnea.

As I examine him to-day, I find posteriorly over the right base a small area of impairment of resonance on percussion about two inches in diameter. The breath sounds are weak and not distinctly bronchial; there are occasionally moist râles. As you see, the general condition of the boy seems good; he lies here without manifest discomfort, is cheerful, and, save for slight dyspnea presents no symptoms of disease. You see, however, on his lips the crusts of an extensive herpetic eruption, and I wish to call your attention to the frequency with which this occurs in croupous pneumonia. This sometimes is of value in determining the diagnosis of obscure cases, though we must remember the frequency of herpes in other affections, particularly malaria and influenza.

I find his pulse 80 in the minute, full, and quite forcible. The respirations are still a little rapid, 24 or 25 in the minute, and quite deep.

We may assume, then, that the boy's condition at the present time is that of advancing convalescence, and that in a few days more the remaining slight impairment will entirely disappear and the restoration of the lung will be complete. Diplococci were found abundantly in the sputum as late as the second day after the fall of temperature. The case, then, was one of uncomplicated croupous pneumonia. The symptoms were mild, and the course entirely a typical one. The febrile period of his illness, beginning on the 27th of December, lasted until the 3d of January, or about seven days, when the temperature fell rather suddenly, though not in the distinctly critical manner which I will show you frequently occurs.[1]

Quite different from this case is the one which I shall now present to you, which still causes us some anxiety, and of the ultimate result of which we may not yet speak in an entirely positive manner. The history of the case is as follows:

M. F., white, born in Ireland, cannot tell her exact age, but is evidently past 60 years. Little family or personal history of the patient can be obtained. She was admitted to the hospital three days after the initial symptoms of the disease began, as nearly as we can tell. She was in a semi-delirious condition; the temperature was 103°; the pulse, 100; the respirations, 40; breathing labored; the pulse weak.

On examination at this time there was found some dulness at the right apex, extending as low as the third rib, and also posteriorly and

[1] The subsequent history of this case was entirely favorable; the convalescence continued uninterrupted, and the patient was discharged on February 6, presenting no sign of the previous disease.

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laterally at the base, but the middle lobe of the right lung was entirely resonant and the dulness at the apex was distinctly more marked than that at the base. Vocal fremitus was increased over the areas of dulness, and the breathing was harsh or bronchial. In addition there were, on admission of the patient, a few subcrepitant râles over the base. The left lung was slightly hyperresonant, but the breath-sounds seemed normal. There was no sputum at this time. Subsequently both areas of dulness increased slightly. The subcrepitant râles persisted and grew more numerous, and on the second day after admission there was typical rusty sputum; the heart sounds were occasionally irregular, but strong. Diplococci were found quite abundant in the sputum. The patient's general condition continued much the same until the evening of the fourth day in hospital, or the seventh day of the disease, when the delirium subsided somewhat and the temperature began to fall. The latter had pursued a regular course, gradually subsiding from 103⅗° to 102° on the day when the crisis occurred. At this time the fever suddenly declined, falling in twelve hours from 102° to 97⅖°, accompanied by profuse perspiration and coincident decrease of

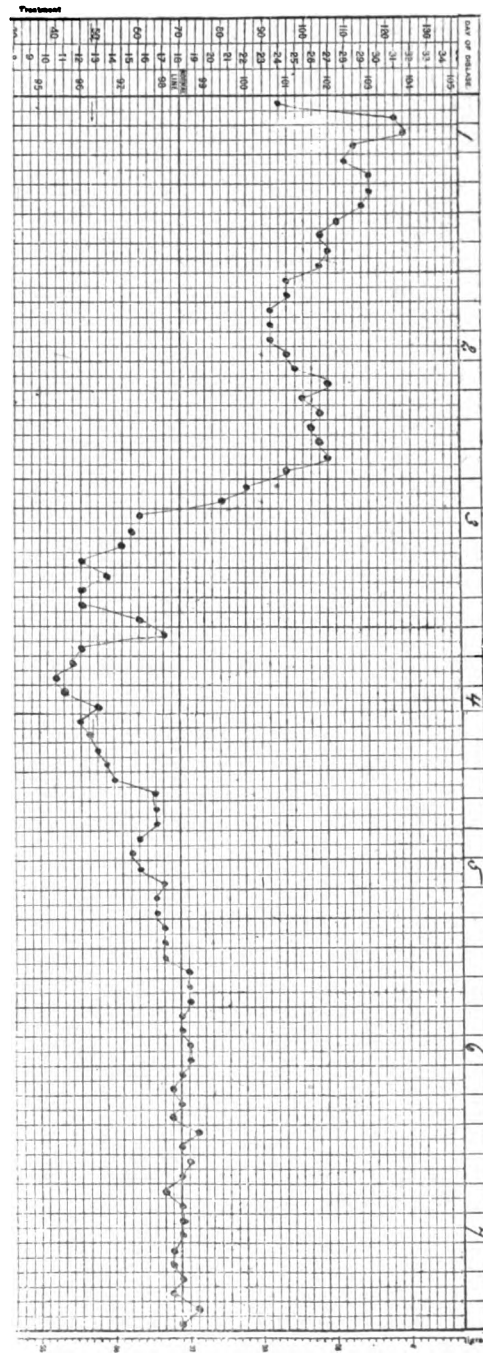

FIG. 1.

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the dyspnea. The respirations fell from 42 to 30 in the minute. Subsequently the temperature has remained sub-normal as you see it to-day. The strength of the patient, the vigorous action of the heart and the general improvement in the nervous symptoms, give us every hope that the crisis will prove itself a true and lasting one, and not of the nature of those pseudo-crises, or false crises, which sometimes occur in this disease and give rise to the mistaken notion that the process is over and convalescence about to be established.

The points of interest in this woman are the localization of the disease at the right apex, or at least the fact that the principal involvement was at this portion; the continuous character of the fever with definite and decided crisis, and the favorable course pursued in an individual of the age and previous unhygienic surroundings of this patient. The old dictum that apex pneumonias are apt to be attended with high fever and marked nervous symptoms, and to run an unfavorable course, receives in this case striking refutation. The nervous symptoms were of a nature not at all unusual, especially in older patients, and we should not have expected to find them less marked had the pneumonia any other situation. It is curious how this old dictum has clung and found constant repetition in spite of the fact that Trousseau long ago pointed out its fallacy, and established the fact that croupous pneumonia of the apex, after all, is simply croupous pneumonia.[1]

The second point of interest in the case is the regular and typical nature of the temperature curve. Though the fever has not been so high as we are accustomed to see in this disease, it has been entirely a regular one, and the crisis was most marked and decisive. You will learn that croupous pneumonia of the aged is not the frank, outspoken disease of definite onset and critical termination we are accustomed to see in young adult subjects, but rather an insidious process, in which the symptoms are atypical and the fever irregular in its onset and termination. I shall show you presently, by the notes and chart of a case seen several years ago, how very unreliable is the degree of temperature in indicating the extent, or even the existence, of croupous pneumonia in old subjects, and it is, therefore, of interest to note the regularity of these conditions in the present case.

The notes of the case to which I referred as showing the afebrile condition sometimes found in croupous pneumonia of the aged are briefly as follows:

F. S., white, aged 74, had marked general arterial sclerosis, with

[1] The subsequent course of the case was entirely a favorable one; the temperature regained the normal after having remained sub-normal for two days; respirations gradually subsided; the physical sounds of dulness, harsh respiration and moist râles disappeared and convalescence was established.

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evidently some deterioration of his brain manifested in a demented condition. No reliable history of the patient could be obtained. The prostate was enlarged, and there was constantly incontinence of urine, which contained crystals of triple phosphate, and which necessitated local treatment. Nothing of interest presented itself in the man's case, but he was frequently found lying in bed in a semi-stupid condition, with some lividity of the face. This had been noted so often that little attention was finally paid to its occurrence. Shortly before the patient's death it was noted that he had a slight cough, but, as you will see by the chart, there was no fever, no increase of the respirations nor acceleration of the pulse, and the patient was not in bed. In fact, there was no suspicion that he suffered with an acute trouble. Death came suddenly after a few hours of apparent sinking, and at the autopsy the entire right lung was found consolidated, in a state of red hepatization. In addition, there was fresh endocarditis of the mitral and aortic valves, warty or verrucose in nature.

Now, as you look at the chart, you will see that the

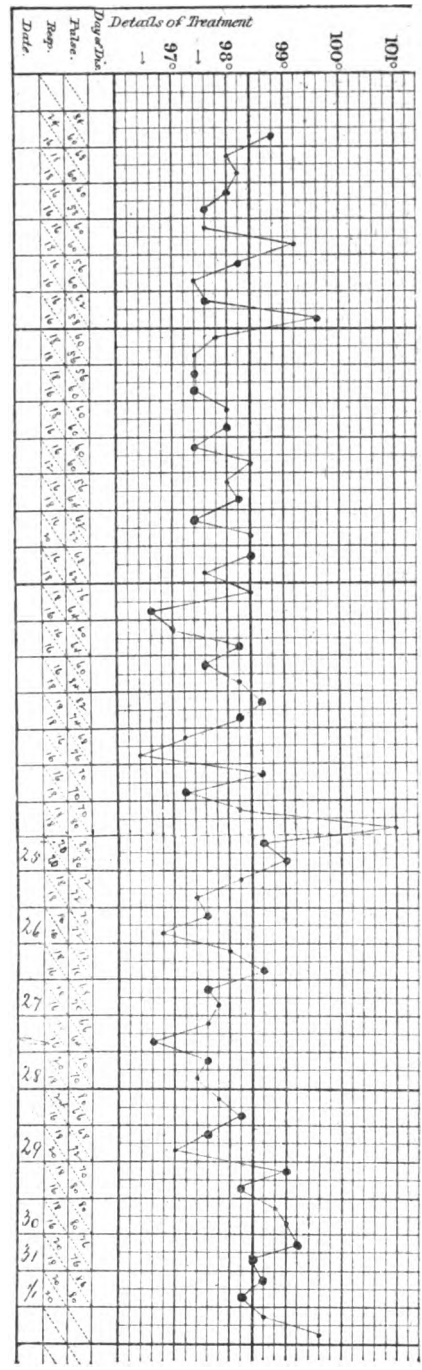

Fig. 11.

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man's temperature, for over two weeks before his death, had been constantly normal, or sub-normal, and there was rather a retardation of pulse and of respirations than acceleration, and while this condition of affairs is decidedly atypical, it serves to show that in senile cases we sometimes find the temperature most misguiding in this disease, and it lends particular interest to the case I show you, in which the temperature has been so typical and so regular.

I shall defer speaking of the treatment until I have shown you one other case:

J. McE., aged 55, a waiter by occupation, has for a number of years been excessively alcoholic, drinking daily five or six glasses of whiskey besides quantities of beer and ale. He had an attack of inflammation of the bowels fifteen years ago, and acute gastritis three years ago. He has frequently had milder gastric attacks after unusual indulgences in stimulants, but with the above exceptions has not been acutely ill.

The present illness began with severe pain in the right side, and with a chilly sensation, though not a distinct chill. He remained in the house and was treated for a "cold." At this time his physician detected crepitant râles at the apex and base, and the sputum was distinctly "rusty" colored.

On admission to the hospital, three days later, his temperature was 102⅕°; pulse, 120; respiration, 44. He did not complain of much pain or discomfort, though there was some pain in the right side on coughing. He could rest only on the left side; coughing was slight; sputum was yellowish and scanty; the tips of the ears and finger-nails cyanosed, and face slightly flushed.

On physical examination the respiratory movements were seen to be restricted, and the two sides sometimes moved independently. On percussion of the right lung there was dulness at the apex anteriorly, merging into resonance at the second rib; dulness also at the sides and posteriorly, corresponding to the lower lobe. There was increase of fremitus over these areas of dulness, also increased vocal resonance, and a decided friction sound over the lower lobe of the right lung, with broncho-vesicular respiration almost obscured by loud rhonchial râles.

The left lung was emphysematous, and the heart dulness reduced to an area one inch in diameter at the fourth rib. The sounds were clear and free of murmur, but the second pulmonic sound was accentuated.

The marked friction sound heard over the right base at this time gave us no little anxiety. You have learned how constantly acute pleurisy accompanies lobar pneumonia, when the latter extends to the surface of the lung, as indeed it usually does; and yet it is rare to find

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large exudates resulting. Usually the pleurisy does not go beyond the stage of slight fibrinous deposit on the surface; at the same time, however, we must be on guard lest an extensive effusion develop, and in a subject such as our present case an effusion of purulent fluid might result. Fortunately our fear was unfounded, and no further trouble was experienced from this source. The patient's general condition was rather bad. He was delirious at night, sometimes very restless, and required sedatives. The physical signs at the apex increased, fremitus and vocal resonance became marked, and the breathing was decidedly bronchial. The dulness at the right base, however, did not increase, and gradually disappeared. Three days after admission to the hospital, crepitant and then sub-crepitant râles were heard over the middle lobe, which became somewhat, though not distinctly, dull on percussion; and the nervous symptoms of the patient were now most marked. On the same day, however, the temperature, which had ranged very continuously from 102⅘° to 103°, began to subside, and within twelve hours fell from 103° to 99°. The nervous symptoms disappeared largely on the day following the crisis, and the temperature, though occasionally rising slightly, has continued near the normal. The physical signs have now gradually subsided, and the patient is fairly convalescent.

This case, also, is one of extreme interest as indicating a regular course where we might well fear atypical and troublesome symptoms. As in the senile cases we are apt to find pneumonia a markedly adynamic disease, so in those who have used alcohol largely, and suffered from its effects, this disease is terribly dangerous. With the exception, however, of the delirium, which at times was urgent, and the general depression, which was out of proportion to the degree of fever, this man's case has run a fairly typical course, with distinct crisis and unimpeded convalescence.

The lessons which are to be derived from the last two cases I have shown you, while most instructive, are mainly to be sought in what did not, rather than what did, exist in them. It has been a most fortunate circumstance in both of them that the symptoms have been so mild, the temperature so low and the general systemic depression so slight; but we must remember that in subjects such as these we must not expect, as a rule, to find pneumonia presenting itself with these features, but rather as an essentially asthenic disease, with tendency to general and nervous prostration, and with the gravest prognosis.

Our treatment in these cases has been practically the same. Had we seen them early, on the first or second day, had they been vigorous young adults, with good circulation, full pulse and high blood pressure, we should not have hesitated to perform venesection at once.

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You know from your studies of the pathology of croupous pneumonia that during the early stage the lung is in a state of active congestion, and whatever treatment may best serve to reduce this congestion at once will unquestionably serve to ameliorate the entire course of the disease. Public opinion has so decidedly set itself in opposition to the practice of blood-letting, which was undoubtedly horribly abused in the early part of this century, and even until recently, that physicians are loath to use a method of treatment which in many cases is capable of the greatest good and of the most decided and immediate results. Unfortunately, the pendulum of opinion in its periodical revolutions swings too far either to the side of praise or of condemnation, but eventually the centre of rest will be found, and as far as croupous pneumonia is concerned I have no doubt of the ultimate recognition of venesection as one of our most powerful means of doing good. In cases, however, of the asthenic type it cannot be used, and if good is to be accomplished it should only be employed during the stage of congestion of the lungs under any circumstances. What we accomplish by venesection may possibly be attained also by the use of wet or dry cups over the affected area, or by the administration of such drugs as aconite and veratrum viride, which dilate the blood paths in the abdomen and elsewhere, and reduce the action of the heart, so that pulmonary congestion is thus relieved.

At the same time the local treatment of the chest itself is of extreme importance. Formerly the application of blisters or of cups was largely practiced, but now we have given these up and prefer to use such measures as will keep the skin and the thorax constantly moist and warm. For this purpose jacket poultices have been frequently used, and undoubtedly, in children, are of great value, but in adults the difficulty of keeping them adjusted, and of keeping them warm without greatly inconveniencing or disturbing the patient, militates most powerfully against their use. We prefer, as you see in the patients whom I have presented, jackets made of cotton batting, and lightly quilted. These are light, thick, and by being made in two pieces, one fitted to the front, the other to the back of the chest, and tied with tapes in various places, are most easily applied and removed. They should be put on immediately after the first symptoms of the case have manifested themselves, and should be kept constantly applied until late in convalescence. I have no doubt that the warmth and the constant moisture insured by these applications has much more influence in determining a happy outcome of the cases of pneumonia than we might be disposed to claim were we asked to prove the manner of their beneficial action. Certain it is that cases of croupous pneumonia treated in this manner are much less liable to extension of the process, and to intensity of

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involvement of the diseased area, than such as are not similarly protected.

In the later stages of the disease, when the lung has become solidified by fibrinous exudate within the air vesicles, remedies are required to soften and favor the expulsion of the exudate. Of such none are more efficacious than the ammonium salts, either the chloride or the carbonate, the latter being preferred where stimulation is specially desired. At the same time we find it necessary to guard, by every detail of careful nursing, against any effort of the patient which might weaken the heart, and if weakness of the pulse or sharpness of the first heart sound should be detected, cardiac stimulants will be required. The carbonate of ammonium, whiskey or brandy, digitalis and strychnia are all good cardiac stimulants. When there is decided circulatory weakness we can rarely dispense with alcohol, but it is a mistake to think that every case of croupous pneumonia demands its use. In young subjects, with forcible heart and general systemic tone, we may frequently avoid alcohol entirely; but, on the other hand, in the old, the debilitated, the asthenic, alcohol and strychnia are invaluable. Digitalis may be used coincidently as a purer heart stimulant when there is more pronounced cardiac than general depression.

Finally, gentlemen, I wish to show you a patient who presents features widely different from those we have just studied, but I suppose we must call the case one of pneumonia, although the physical signs are entirely unsatisfactory.

The history is as follows: P. C., aged 30, a mulatto from South Carolina, of good family record; has always been well except from an attack of smallpox. She has been married thirteen years, has four children, the youngest born on the 24th of January, two and a half weeks ago, and, therefore, practically speaking, this illness occurred almost as a complication of the puerperal state, as it began on the 3d of February, ten days after delivery, with sore throat, chest pain, but without marked chill.

When she came in she looked like a very sick woman; she was much emaciated, respiratory movements feeble and shallow; and a few days ago this record was made: "There is a fetid vaginal discharge, the breath is fetid, the bowels loose." It would seem as if the whole system was disturbed, and in all probability there has been a septic element in starting the disease. The right chest expands less than the left; fremitus is slightly increased over both pectoral regions.

There were quantities of sudamina, but these have dried up entirely; there is extreme pigmentation of the mammary alveoli and of the abdomen. There is no positive evidence of any source of septic trouble, but she complained of soreness just above the umbilicus.

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Over the cecal region I find distinct induration, but it does not pain her on pressure; and though her bowels are said to be loose, this induration may be due to fecal accumulation in the cecum. I would not hasten to assume that it was inflammatory in character, and I hope when we examine the part again to find that it has moved, showing it is in the bowel. Oftentimes we are alarmed and led astray by masses detected here, thinking they are of morbid origin, when they afterward prove to be fecal accumulations.

The physical examination of the chest now shows comparatively less expansion on the right than the left, the fremitus on the right rather more than on the left, indicating greater trouble on the right side; the sudamina over the pectoral regions have disappeared. Over both sides sibilant and sonorous râles, the evidence of bronchial catarrh; over the right upper lobe resonance more marked than elsewhere, respirations weak and slightly blowing, but still not enough to indicate consolidation. Posteriorly, the vocal fremitus is well felt on both sides above, but weak at the bases; and the breath-sounds are feeble all over the chest. In the sputum diplococci are abundant; no tubercle bacilli.

Now, here is a case in which the temperature has been as high as $103\frac{4}{5}°$ for several days, though a little less to-day, and you see that yesterday there was a clear break, from $103\frac{4}{5}°$ down to $99\frac{4}{5}°$, a fall of four degrees, attended with copious sweating—in other words, it looked very much as if this patient had gone almost to crisis before coming to the hospital. These sudamina were rather significant of that. You cannot say positively when they appear that the pneumonia is at an end, but they are more apt to come near the crisis than are herpes, which may come at any time.

Of course, I do not know but that, early in the case, the signs were more clear; there may have been a larger area demonstrable. We now find evidence of imperfect expansion and of bronchial catarrh, everywhere slight impairment of resonance, feeble respiration over the bases, but no dulness on percussion, no bronchial breathing, and yet who can doubt, with these symptoms and temperature of $103\frac{4}{5}°$, and corresponding respirations, that there are patches of pneumonia in the lung. She would not be as ill with ordinary bronchitis.

We must regard this case, therefore, as pneumonia, occurring in a woman after child-birth, and probably in limited areas. I would unhesitatingly have said catarrhal but for the pneumococci in the sputum, and even with them I am disposed to regard it as of that character. The absence of distinct consolidation, and the large amount of bronchial râles, the sore throat present, the absence of chill, all are against the croupous form; and we must not be misled into the thought that pneumococci necessarily indicate the croupous form, though they

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are associated with that variety in an overwhelming proportion of the cases.

She has this drop of temperature, and I want to show you what has happened since; it went down to 100°, and was not, as in the old woman I showed you, sub-normal. When crisis occurs in croupous pneumonia, usually the temperature drops below the normal, and in favorable cases does not go above the normal line again. This woman had a temporary drop of a few hours, and immediately the temperature went up, reaching 103.2° the same evening, and this morning it is 102°, showing there is still an active morbid process in the woman's system. The physical signs seem to be clearing up slowly, as we should expect in catarrhal pneumonia, which does not usually terminate as abruptly as croupous. There may be drops like this in the temperature, but the walls of the alveoli are so much more deeply involved that the catarrhal process sets up fresh exudation, the catarrh spreads in other directions and fever is again lighted up. There is nothing like the same tendency to definite self-limitation here as is found in croupous pneumonia. So, if we could think this woman's lungs alone to be the cause of her fever, we could readily explain all of it in the catarrhal pneumonic nature of the attack. But we must not be satisfied with partial explanations; it is necessary to search everywhere and examine into every part.

The recent parturition, the indefinite nature of the physical signs and the woman's general appearance suggested to us that we might be dealing with a case of puerperal fever, and the fetid vaginal discharge lent color to the suspicion; but we can find no evidence of pelvic or abdominal disease, and the marked bronchial catarrh forced us to the conclusion that the principal source of trouble lies in the chest.

But still, I do not want to assume too hastily that the chest trouble is the explanation of all her symptoms; that is the reason we carefully examine her abdomen. While I hope and believe that that mass in the right iliac fossa is nothing but fecal accumulation, the fact of her being less than three weeks after her delivery, and the fetid vaginal discharge, make me suspicious that there may be some septic process going on, which may break out you do not know where, and until the temperature goes down I shall watch the case with great anxiety. The fact of her copious sweating and the fall of temperature were very encouraging, but the temperature has gone up again almost to 103°, and under the circumstances I cannot pretend to say that the trouble all comes from the chest. Her urine is normal, and everything we have examined has failed to throw any more serious aspect on the case; yet we will watch the case until the temperature goes to the normal, or sub-normal.

[NOTE.—Subsequently the woman's condition grew worse, she

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became more and more depressed, delirium developed, abdominal tympany grew troublesome, and on vaginal examination a suspicious bogginess was discovered at the sides of the uterus. In spite of vigorous local treatment and general stimulation the woman finally succumbed to gradually increasing asthenia.

At the autopsy the uterus was found infiltrated with purulent matter, and there was considerable periuterine inflammation and exudation. The lungs were everywhere studded with areas of lobular pneumonia, though the bases were most densely involved. The pleuræ of both sides were covered with a recent exudate.]

NEURITIS AND MYELITIS AND THE FORMS OF PARALYSIS AND PSEUDO-PARALYSIS FOLLOWING LABOR.[1]

By Charles K. Mills, M.D.,

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Neural and spinal affections of puerperal origin, although not entirely neglected, have received but little attention in the text-books and journals. Imbert-Gourbeyre[2] refers briefly to the occurrence of paralyses from trauma during labor in a monograph on "Puerperal Paralyses," giving several cases. One of these, from Rademacher, was an incomplete and painful paraplegia coming on at the end of a long and difficult labor, and cured in eight days, chiefly by friction. Another patient, 36 years old, during her third labor was paralyzed in both extremities, and recovered in a few months. Salvat is recited as reporting the case of a woman treated by him for vesico-vaginal fistula, with paraplegia produced by the long stay of the head of the fœtus in the inferior strait. Another patient, 32 years old, during her fourth labor, which was prolonged and the delivery by forceps, suffered great pain in the loins, accompanied by feebleness and swelling of the legs. The feebleness increased to paraplegia, and she had lancinating pains, paresthesia and cramps in the limbs. I have cited these cases in a paper on "Lesions of the Sacral and Lumbar Plexuses,"[3] in which I

[1] Read before the College of Physicians, Philadelphia, March 1, 1893.
[2] Imbert-Gourbeyre: Mém. de l'Acad. Imp. de Méd., tome xxv, 1861.
[3] Mills, Med. News, June 15, 1889.

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have also reported two cases of sacral neuritis, kindly furnished me by Dr. Howard A. Kelly, of the Johns Hopkins Hospital. The first patient had passed through a difficult instrumental confinement some twelve years before coming under observation. She visited many prominent gynecologists and underwent a number of operations, the last being the removal of two large tubes and ovaries. She was relieved of menstrual exacerbations, but still suffered great pain in the pelvis, for which she was receiving galvanism, massage and antilithic remedies. A careful examination showed that the uterus and its surroundings were perfectly free from disease. On making a careful rectal examination, however, outlining the sacro-sciatic ligament and pyriformis muscles, and carefully palpating the roots of the great sciatic nerve, upon touching one cord she gave a sudden scream, at the same time doubling up her leg and jerking her body in the bed. Here, directly over the roots of the left sciatic nerve—the left sacral plexus—was the only diseased area which could be detected in the pelvis. All subsequent treatment was directed to this condition. The second patient had constant pelvic pain, which she described as soreness, located at the "back of the womb." She had been for several years, since the birth of her last child, under the care of gynecologists, who had not been able to give her any relief whatever. It was found by exploration that the only point of tenderness in the pelvis was at the roots of the sciatic nerve, and here she at once located all her pain, when the doctor introduced his finger into the rectum and made pressure on the nerve trunks. The case was one of neuritis. As Dr. Kelly remarks in the communication sending notes of these cases, they teach the value of exploration of the pelvis outside of the uterus and its annexes.

Ramsbotham[1] speaks of paralysis of both legs of varying degree occasionally happening after labor; more frequently when the process has been tedious and painful, but sometimes when it has been of ordinary duration, or even of unusual rapidity. He is evidently referring to the same classes of cases of which we are treating in the present paper. "It is not attended with cerebral affection," he says, "but is dependent on pressure which the muscles and nerves have sustained during the passage of the child's head through the pelvis. There is pain and numbness, both within the cavity and around the hip, and an inability to move the limb with freedom. It generally disappears by degrees within a few days; at other times it continues beyond the period the patient commonly remains in bed, and compels her when she rises from it to use a stick or a crutch. Fomentations in

[1] Ramsbotham: The Principles and Practice of Obstetric Medicine and Surgery. Am. ed., 1865.

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the first instance, and afterward stimulating embrocations, a douche or shower bath, tonic medicines and gentle movement of the limb, will offer us the best chances of success. Hemiplegia, indeed, may appear after delivery as well as at other times; but there will then be particular symptoms, independent of those connected with the local affection, which are too well known to require mention from us here."

Cazeaux and Tarnier,[1] in the American edition of their treatise, translated by Hess, under "Lesions of Innervation," direct attention to the various forms of paraplegia occurring during pregnancy or labor, most of which they attribute to reflex causes. Lloyd[2] considers some aspects of the subject in a contribution to Hirst's "American System of Obstetrics."

Winckel[3] introduces a brief chapter on the "Neuralgias and Paralyses of the Lower Limbs," with a paragraph which is comprehensive in its presentation of the etiology of these affections: "The puerperal neuroses of the lower limbs are located chiefly in the nerve trunks, more rarely in the nerve centres, and generally owe their development to parturition. Injurious pressure is effected by a large, hard, child's head, unfavorable in presentation in a small pelvis. Vigorous compression may result in complete interruption of conduction at the compressed spot. This occurs in instrumental aid during labor, inasmuch as the rim of the blades of the forceps may produce severe contusion of the sacral plexus on forced closure as well as during extraction. The thick nerves are also compressed not infrequently by a pelvic exudation, or small extravasations from the neighboring parts extend to the sheathes of the nerves, or hyperemia or edema of the neurilemma appear spontaneously. We have already mentioned that parametritis may give rise to such neuralgias. The location of the affection is in the external and middle cutaneous, obturator or sciatic nerves. The two latter nerves are especially apt to suffer during labor. Even the slight pelvic exudations, for example, one resulting from phlebitis, may make a nerve trunk incapable of conduction without compressing the entire trunk. (Leyden.) Injuries of the vagina, with subsequent severe cicatricial contraction, may also exercise traction and pressure on individual nerve trunks of the pelvis minor, and hyperesthesia and motor disturbances may thus be produced."

Brief references to this subject are also to be found in some of the neurological text-books, but it is not in these treated of systematically.

To Dr. Anna M. Fullerton, of the Woman's Hospital of Philadel-

[1] Cazeaux and Tarnier: Theory and Practice of Obstetrics. 8th Am. ed., edited and revised by R. J. Hess, M.D., 1887.

[2] Lloyd: Hirst's System of Obstetrics by American Authors, Vol. II.

[3] Winckel: A Text-Book of Obstetrics. Translated by J. Clifton Edgar, A.M., M.D., 1890.

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phia, who, in her large obstetrical experience, has seen a number of instances of paralysis and pseudo-paralysis during the puerperium, I am indebted for the notes of some cases which will be given later. In a letter accompanying these notes she says that partial paralysis is in general short-lived, being limited generally to two or three days. She has seen paralysis of the rectum and sphincter from long-continued pressure of the head upon the floor of the pelvis, which sometimes persisted for a week or ten days, and which was only overcome by faradism and time; also vesical paralysis, which has sometimes lasted up to the sixth, seventh, or twelfth day after delivery. According to Dr. Fullerton, cases of contracted pelvis, which, because of a narrow inlet, have resisted the engagement or descent of the head, and cases in which for any cause there has been impaction of the fetal head, have been those most commonly resulting in paralysis.

The following are her notes of one of these somewhat serious but comparatively short-lived cases. Probably the case was one of pressure neuritis:

"M. M., married, a dwarf, aged 25 years; pubis generally contracted. The patient came to the Woman's Hospital maternity September, 1892, for her second confinement. The first stage of labor was very slow; descent of the fetal head very slow, with impaction in the pelvis before rotation; presentation, vertex, second posterior variety. There was threatened asphyxia of the child with exhaustion of the mother, which led to forceps delivery. The extraction was easy, and no laceration of the soft parts occurred. She complained, the night following delivery, of great pain in the right groin and entire right limb, and was unable to move the limb. Pressure on the anterior crural and obturator nerves caused her to cry out with pain. Flaxseed poultices were applied over the groin; the limb was elevated and bandaged with flannel. These symptoms lasted about ten days, and then entirely disappeared. She was out of bed by the third week, and able to return to her home the fourth week."

The most valable recent paper on puerperal paralysis of peripheral origin is that of Hünermann,[1] assistant in the clinic of Gusserow, at Berlin, on "Paralysis in the Region of the Sciatic Nerve following Labor." On examination of this paper, which I have obtained quite recently, I find that Hünermann has reasoned with reference to the production of the most common type of these palsies in much the same manner as I had already presented the subject in the arena at the Philadelphia Hospital, and to my ward classes. He carefully traverses the literature of the subject, and his paper can be consulted with advantage for French and German references. Among the writers to

[1] Hünermann, Archiv. für Gynäkologie, Berlin, 1892, Vol. XLII, Part 3.

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whom he refers are von Renz, Koeppen, von Leyden, Kast, Möbius, von Basedow, Gerber, Breisky, Litzmann, Kehrer, Dorion, Bianchi, Lefebre, Brivois, Guinon and Parmentier, and Handford, to some of whom I shall have occasion to allude.

The affections to which attention will be especially directed in the present paper can be conveniently discussed under five heads:

(1) Traumatic paralysis of the peroneal type, usually associated with severe neuritis.

(2) Sacral and sacro-distal neuritis, sometimes accompanied by a pseudo-paralysis, and often maintained or aggravated by disease and displacements of the pelvic organs and tissues.

(3) Puerperal neuritis, local or multiple, and due to septic or other infection.

(4) The neuritis, paralyses, and pseudo-paralyses of phlebitis, and phlegmasia alba dolens, which are often septic, but have special features.

(5) Puerperal myelitis occurring under the same conditions as the forms of septic and infectious neuritis.

Brief references will also be made to forms of hysterical and reflex paralysis which must be diagnosticated from the affection under consideration. Some cases illustrative of each of the classes mentioned will be presented, the first class, however, receiving the fullest discussion. The first three cases are interesting examples of this type of paralysis and neuritis.

Paralysis of the Peroneal Type and Associated Neuritis after Labor.

Case I—*Prolonged labor and forceps delivery; left peroneal paralysis, anesthesia, and neuritis; recovery from the neuritis and persistence of the paralysis; previous history of syphilis.*—The notes of this case were presented to the Philadelphia Neurological Society, and were published with the discussion.[1] I shall give them here somewhat condensed.

Mrs. W., aged 30 years, had been twice married, and believed that she had been infected with syphilis by her first husband in 1884. In 1889 she married again, and was in labor June 3, 1891. The labor was prolonged and painful; instruments and chloroform were used. On recovering from the anesthetic she felt a severe pain in the left hip, leg, and foot. The limb was paralyzed, and from this time she suffered with all the symptoms of a severe neuritis, which continued with little abatement for about three months, when it began to decrease. In October it had almost entirely disappeared, but the left leg was still in an extreme condition of motor paralysis.

[1] Journal of Nervous and Mental Diseases, February, 1892.

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Five weeks before she was examined by me she was suddenly stricken, without unconciousness, with an attack of paresis in the left upper extremity, and some difficulty of speech, from which, however, she recovered. The attack was cerebral, and has no bearing upon the problems discussed in this paper, except in so far as syphilis was probably the predisposing cause of both conditions.

On examination, it was found that all the movements of the muscles below the knee supplied by the branches of the external popliteal or peroneal nerve were paralyzed and non-responsive to electric currents. The foot was swollen, purplish in color, and cold. No loss of sensation was found anywhere, but she still had great pain on pressure at the sciatic notch, and in such cords of the sacral plexus as could be reached by the rectum. The muscles above the knee, and also the gastrocnemius, soleus, and posterior tibial, were not affected. Knee-jerk and muscle-jerk were normal on both sides. Bladder and rectum were not involved.

In the discussion of this case,[1] Dr. Wharton Sinkler spoke of a case which had fallen under his care. The patient was a small woman, a primipara, and the labor was instrumental and very difficult. On recovering from the anesthetic she complained of severe pains in the legs, and the pain and hyperesthesia continued for several weeks. He saw the patient in consultation about six weeks after labor. There was then contraction of the knees, and the muscles were considerably atrophied. Extreme hyperesthesia was present, especially below the knee, but no special pain over the nerve trunks, no loss of reflexes, and no loss of response to the faradic current. The patient recovered entirely, and in two months was perfectly well. The neuritis was complete and equal in both legs.

In the same discussion, Dr. F. X. Dercum reported a case which he saw some months after labor. Great violence had been used. Paralysis and wasting were both present. The type of the paralysis was not specified in either of these cases.

CASE II—*Left peroneal paralysis and anesthesia; neuritis after two weeks; recovery from the neuritis; persistence of some paralysis, but very great improvement.*—Mrs. H., aged 33 years, was confined May 23, 1892. She was in labor twenty-one hours, with severe, almost constant pain during the last ten hours. She was under the influence of chloroform for nearly an hour, and was delivered by forceps. After delivery she found that her left leg was paralyzed and anesthetic, requiring to be lifted for all purposes. During the third week pain began in the hip, and rapidly became more and more severe, extending down the legs to the toes. Soon the other leg was attacked with a similar but

[1] Ibid.

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less severe pain. Sometimes the pain was darting and burning, and the left foot was extremely sensitive to handling. Some loss of power was present in the right leg. She continued to have great pain, and was only able to stand or walk with the aid of a cane, and with much suffering on making the effort. Her treatment consisted of partial rest, the use of anodynes with liniments externally, and the internal use of morphine, atropine, and occasionally the bromides. Hypodermic injections of morphine and atropine were necessary for some time; but the morphine had unpleasant constitutional effects upon her, causing nausea and dizziness, so that it could not be continued.

This patient was first examined by me early in September, 1892. Her left leg was extremely sensitive over both its anterior and posterior aspects, especially above the knee in the left popliteal space. On the right side similar hyperesthesia was present, but not nearly so marked. Lateral squeezing of the left foot caused considerable pain, which was absent in the right. Examination both by the rectum and vagina showed extreme sensitiveness of the nerves of the pelvis, particularly on the left side. Until a week or two before coming under observation, moving about and sitting down with a slight jar would cause pain, which, she said, "seemed to be in the bones on each side of the rectum." No paralysis was present in the right lower extremity. The movements of this leg were almost perfect, showing only a little weakness. Below the left knee she was totally paralyzed for the movements of dorsal flexion at the tarsus, and of extension of the phalanges of the great toe and of the other toes. Movements controlled by the posterior muscles of the leg below the knee were present.

Believing that she had suffered from a crushing of the lumbo-sacral cord and upper sacral nerves and a consequent neuritis, and that this neuritis was still present and active, although improved, she was placed in bed with sandbags to her limbs; and upon the use of hot douches, mercurial and atropine inunctions, salicin and other remedies internally, in accordance with a plan of treatment which will be discussed later. After the neuritis had largely subsided, galvanism, massage and Swedish movements were systematically employed. The patient returned to her home cured of her neuritis, and with only partial paralysis of her anterior tibial remaining. She is still treated at her home with galvanism.

CASE III—*Probable neuritis before labor; prolonged labor and forceps delivery; neuritis and right peroneal paralysis; recovery from neuritis, but persistence of some paralysis.*—Mrs. R., aged 24 years, had been healthy before her marriage. For a week before her first child was born she suffered severe pelvic pain. Labor was prolonged, and she was delivered with instruments. Before delivery she complained

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of severe pain, commencing at the hip and extending to the toes of the right foot; and just at the time of the birth of the child she felt a very sharp pain, commencing at the hip and extending downward to the toes of the right foot. After delivery the pain and tenderness spread through the entire limb, every movement and jar of the leg causing suffering. On the ninth day she attempted to get on her feet, but found that the right leg was nearly helpless, and the pain on movement was so great that she was forced to lie down. This condition continued for five weeks. She thought the pain had been most severe on the outside of the limb from the ankle to the hip. At the end of five weeks she was able to walk, but found that she had not the proper use of her foot. She was not aware of having had at any time loss of sensation.

She came as an out-patient of the Polyclinic Hospital, remaining for a few weeks, and then disappearing from the service. She was sent for, however, and examined by me again January 28, 1893. In the meantime she had had another child, October 15, 1892. The condition of her leg was practically the same as at her first appearance at the Polyclinic service, although the woman herself claims that she had had better use of her limb since her last confinement. While having the second child she experienced pain similar to that from which she suffered during the birth of the first child, but of less severity.

She has at present no sensory symptoms. The right leg below the knee is a little smaller by measurement than the left; circumference of the left calf is 13.5; of the right, 12 inches. The movements now completely paralyzed are those of the tibialis anticus and peroneus tertius muscles. Dorsal flexion of the great toe and of the other toes can be performed, but flexion at the tarsus cannot. The extensor longus digitorum and extensor proprius pollicis muscles are, therefore, at present not paralyzed. Faradic and galvanic contractility are abolished in the anterior tibial and peroneus tertius—in fact, these muscles have largely disappeared.

A summary of Hünermann's four cases will be of interest in connection with these reports:

His first case was a primipara, aged 36 years. Labor began January 22, 1892, in the morning. On the 23d she had severe pain and convulsive movements of the right leg. Forceps delivery under an anesthetic was unsuccessfully attempted, when she was transferred to Berlin, a few miles distant, arriving January 24th, at the Charity Hospital, after three and a half days' labor. Details of her condition are given by Hünermann. Perforation and extraction were performed. The child had evidently been dead for some time, but the puerperium passed favorably. On the morning after confinement Hünermann dis-

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covered complete paralysis of the right peroneal nerve. The woman complained of severe pains in the course of the sciatic, also of a feeling of numbness on the outer side of the left calf, and of tingling and creeping sensations in the toes. She could not dorsal-flex the right foot or extend the toes, nor sink the inner border of the foot; but she could with considerable force bend the foot downward; she could also flex the toes and execute all the movements of the knee and hip joint without difficulty. There was not the slightest disturbance of sensation. During the first three nights her sleep was completely interrupted by the pains in her legs. Wrapping the leg in cotton and bandaging it gave some relief. From the fourth day the patient was treated with the faradic current; but when on the thirteenth day she got up the muscles supplied by the peroneal were completely paralyzed. On the sixteenth day she was carefully examined and depression of the electrical excitability of the paralyzed muscles was established. She received a daily bath and electricity. The impairment in motility was still noticeable at the end of the third week, when the patient left the hospital. Her walk was still greatly affected.

Hünermann's second case was a primipara, aged 16 years, of frail, bony development, and childish in looks. Measurements were taken, which showed a contracted pelvis. The patient was at the end of her normal pregnancy. The child was in the first position on admission, January 22d. Details are given of the labor, which was tedious and halting, the pains becoming stronger until the 25th. The head had entered the pelvis with a remarkably low position of the fontanelle. Toward evening the patient felt pain and a feeling of numbness and tingling in the right calf downward from the knee; and she could not step on the right foot when she got up to pass water. She was delivered January 25, under an anesthetic, with the forceps, of a slightly asphyxiated girl, well developed, and showing a long line of pressure, which began about the right frontal eminence at the border of the hair, and reached diagonally to the left and backward. Hünermann particularly mentions this pressure line, which only disappeared on the tenth day, and was in his opinion not caused by the forceps, but by the linea innominata, which had resisted the progress of the child's head. On the first day of the puerperium the mother was found to have a complete paralysis of the peroneal nerve. As in the previous case, the phenomena were the same during the first few days, being without disturbance of sensibility, but with complete loss of function of the groups of muscles supplied by the peroneal nerve. She complained of painful twitching and of numbness in the right calf. On the evening of the first day fever set in, lasting until the thirteenth day. The perineum was ruptured; involution of the uterus was faulty, and the lochia of bad odor until

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corrected by the antiseptic douche. On the seventh day and later she developed great pain in the right trochanter, and other symptoms of a descending neuritis. She suffered from headache and insomnia. She left her bed on the fifteenth day. On the twentieth day examination showed unequal pupils, not reacting to light, and not contracting on convergence; knee-jerk was missing on both sides. The ocular and knee phenomena are referred by the reporter to an attack of diphtheria which the girl had in her ninth year; or, perhaps, to congenital syphilis. She undoubtedly, however, had paralysis of the right peroneal nerve, which only developed in connection with or following the labor, although Hünermann says that it must be admitted that a previous disturbance of her central nervous system had predisposed her to an affection of the peripheral nerves. Several weeks after labor only a slight improvement in the peroneal paralysis had been accomplished.

The third case of Hünermann was a well-built woman with normal pelvis, aged 34 years, who had given birth to five living children without artificial aid. She was delivered in twelve hours, under chloroform, with forceps. The child was dead. Immediately after reaction from the anesthetic she felt strong, cramp-like pains in the left leg. She continued constantly to complain of pain in this leg, but Hünermann discovered a complete paralysis of the muscles supplied by the peroneal nerve of the left leg, while tactile sensibility was undisturbed. She had a hematoma in the left wall of the vagina, which disappeared in about two weeks. No pelvic exudate could be found. Paralysis with reactions of degeneration in the muscles supplied by the peroneal nerve continued. An examination made ten months after labor is given. The left leg was then somewhat atrophied on the anterior and outer side. The sciatic was not especially sensitive at the great sciatic notch and trochanter major upon pressure; but distinct pain was present when the head of the tibia was pressed. Knee-jerk was more marked on the left than on the right. Sensibility was not disturbed. This case of paralysis Hünermann believes was due to the application of forceps, and as favorable to this view was the fact that the woman at once after the operation felt the pain in the left leg. A pressure of the roots of the sciatic nerve could easily take place; again, it was the lumbar roots which especially suffered, while the sacral nerves were very little affected. The case reminds him of one of the cases reported by Bernhart of left-sided peroneal paralysis after forceps delivery. In this case, also, forceps were applied in the high position, and the second position of the head.

The fourth case, M. R., aged 37 years, had gone through four hard confinements, all the children being born dead; she had had three

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forceps deliveries. At the last confinement, after application and use of the forceps, she had a sudden tearing pain in the left side of the pelvis; at the same time she had strong jerking in the left leg. Since then she had been paralyzed in the same leg, and shortly after confinement she had wearing and jerking pains in this leg. She had no fever or parametritis after labor. Being disabled from walking, and the treatment at her home not being satisfactory, she came, six months after her confinement, to the medical clinic of Dr. Goldscheider, where Hünermann had the opportunity of examining her. He found an otherwise healthy woman who showed no signs of disease of the internal organs, with a marked paralysis in the region of the peroneal nerve, while the muscles of the tibial (internal popliteal) nerve were also affected. The paralyzed muscles were distinctly atrophied. Her walk, though awkward and clumsy, was quite possible without apparatus. Electrical examination showed complete reaction of degeneration in the left peroneal region; and in the region of the left internal popliteal a slight quantitative change to both currents was present.

I have thought it worth while to summarize these cases of Hünermann in connection with my own records, as the subject is one that has not been discussed in detail by writers; and in particular, the type of paralysis which so often results has not been pointed out, so far as I know, except by Hünermann.

In the cases described or referred to by Imbert-Gourbeyre, Ramsbotham, Winckel, Lloyd, Kelly, Fullerton, and others, no reference to any special form of paralysis has been made.

This question of the particular type of paralysis which results is one of the most interesting connected with the subject in hand. It will be recalled that my three cases were left with persistent paralysis in all, or some of the muscles supplied by the branches of the external popliteal or peroneal nerve. The cases of Hünermann were also of this type, and his paper is largely devoted to an exposition of the anatomical reasons for the occurrence of this particular form of paralysis. I had arrived at almost identical conclusions with those of Hünermann before I saw his paper, but I am indebted to him for interesting details and particular points in the anatomical explanation, of which I shall make use.

The sciatic nerve arises from the apex of a triangle formed by the sacral plexus at the distal border of the pyriformis muscle. The plexus lies on the anterior surface of this muscle in such a manner that the first sacral lies above the proximal, and the third under its distal edge, the second sacral being between the two on the anterior surface of the muscle. While the plexus thus lies with its sacral roots on a soft layer of muscle, the lumbo-sacral nerve (lumbo-sacral cord), rising from fibres given off in part from the fourth and wholly from

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the fifth lumbar nerve, glides almost immediately upon a bony base over the sharp linea innominata. This lumbo-sacral nerve is mainly the root for the peroneal or external popliteal nerve. The superior gluteal nerve arises from the posterior part of this lumbo-sacral cord; and, therefore, we would expect to and do find it affected in some of these cases of puerperal paralysis.

Lefebre, among others, has proved that the peroneal or external popliteal nerve is a continuation of the lumbo-sacral cord; and rare cases have been reported in which it could be traced as a separate nerve all the way from the pelvis.

A study of this kind shows how anatomico-physiological investigation and practical medicine sometimes reciprocate their services. One of the important problems in spinal and peripheral localization is the determination of the relationship of particular segments of the spinal cord to certain nerve movements, reflexes and areas of sensation. M. Allan Starr[1] has published a table of the localization of the segments of the spinal cord, which has been modified and added to by me in a paper on "Spinal Localization."[2] The results embodied in these tables were arrived at by physiological, clinical, clinico-pathological, anatomical and histological investigations. In the present study practical obstetrics assist us to a decision as to the segmental origin, root and exact course of one of the most important nerves of the lower extremities.

Below is given from this table that portion which relates to the localization of the representation of movements of the lower limb in the spinal cord from the fourth lumbar to the second sacral segment:

FOURTH LUMBAR SEGMENT:
MUSCLES.—Abductors of thigh.
Adductors of thigh.
Flexors of knee.
Tibialis anticus.
Peroneus longus.

FIFTH LUMBAR SEGMENT:
MUSCLES.—Outward rotators.
Flexors of knee.
Flexors of ankle.
Peronei.
Extensors of toes.

FIRST AND SECOND SACRAL SEGMENTS:
MUSCLES.—Flexors of ankle.
Extensors of ankle.
Intrinsic foot muscles.

[1] Starr: Amer. Journ. Neurol. and Psych., 1884, and Amer. Journ. Med. Sci., 1888.
[2] Mills: Therapeutic Gazette, May 15 and June 15, 1889.

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The chief divisions of the peroneal are the anterior tibial and musculo-cutaneous nerves, the former supplying the tibialis anticus, extensor longus digitorum, peroneus tertius and extensor proprius pollicis muscles. One of the branches of the anterior tibial also supplies the extensor brevis digitorum; and from the musculo-cutaneous nerve are given out fibres to the peroneus longus and brevis. Any or all of the subdivisions of the peroneal may be affected in these traumatic puerperal palsies, but the movements controlled by the anterior tibial are most likely to remain persistently paralyzed, as a brief reference to the movements effected by these muscles alone, or in groups, in connection with a study of the details of the cases, will serve to make clear. The tibialis anticus muscle elevates the inner front portion of the foot, flexing it at the ankle joint and adducting it. The extensor longus digitorum, commonly working with the extensor proprius pollicis, extends the toes and, continuing, helps to flex and abduct the foot. The peroneus tertius is really a part of the extensor longus digitorum, and works with the anterior tibial in the direct flexion of the tarsus upon the leg. The peroneus longus and the peroneus brevis, which are supplied by the musculo-cutaneous, evert and rotate the foot outward.

A study of these facts of the table shows that the movements paralyzed in these cases of puerperal traumatism are those of the muscles supplied by the peroneal or external popliteal nerve, and that these movements have their representation chiefly in the fourth and fifth lumbar, and the first sacral segments of the spinal cord, where the lumbo-sacral cord and first sacral nerve evidently arise.

It is a fair question whether the spinal cord does not become secondarily diseased by extension of the inflammation backward along the great nerve cords assaulted. The paralytic, trophic, and vasomotor phenomena presented by some of the cases are difficult to distinguish from the conditions due to a complete crushing of a large nerve root or cord.

While a complete crushing of the lumbo-sacral cord and of the upper sacral nerves would account for a long and persistent palsy of the muscles supplied by these nerves, it is not unlikely that the neuritis in some of these cases not only extended and diffused itself throughout the extremity, but has ascended and entered the cord, and attacked the ganglion cells of the cornua, giving us, in a word, a neuromyelitis.

In connection with this point the method of the extension of the inflammation from one limb to the other is of interest. This occurs after a longer or shorter time; the two limbs are not coincidently affected with the inflammation. It is probable that the inflammation extends not in the pelvis nor by way of the cord proper, but rather by

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the cauda equina, spreading sidewise from one closely apposed nerve or nerve-sheath to another.

Although these peroneal palsies usually occur in cases of instrumental delivery, the traumatism which produces them is not commonly inflicted by the forceps. The labor is instrumental because, owing to a contracted pelvis, it is greatly prolonged. The injury to the nerve cords is usually inflicted by the skull of the child, although nerve injuries are doubtless sometimes inflicted by instruments. Hünermann speaks of this being the case sometimes when pendulum, side to side, and rotating movements are made. One practical point in the diagnosis of nerve injuries made by the forceps from those caused by the head of the child is that in the former the second and third, and even lower sacral nerves are most likely to be injured, and in the latter the lumbo-sacral cord and first sacral nerve. Cases have been reported in which, from instruments, the posterior calf muscles—those supplied by the internal popliteal—have been paralyzed instead of those supplied by the external popliteal or peroneal. In one case which has come to my knowledge, a sharp pain came on immediately after the application of the forceps, and the patient said that this pain was much greater than any endured during the prolonged labor. She was at the time partially under the influence of ether, but cried aloud with the pain in her leg when the forceps were applied. The pain, she said, was different from the ordinary labor pain, although in her case this was extreme. Afterward she had some neuritis, which continued for six weeks, and when she was up and walking about she was quite lame for at least two weeks. This was probably an instance in which some portion of a nerve has been pinched—one of the cords of the plexus, and probably the second or third.

From several points of view prophylaxis is of great importance in these traumatic cases. Certain obstetrical questions need to be more fully considered than can be done by one who, like myself, is not an obstetrician. The reports of the cases by Hünermann have a value not possessed by the records of my own cases, in that he gives certain important obstetrical details, such as the positions of the head and pelvic measurements. These measurements, according to him, in some of the cases showed a generally contracted pelvis. Certainly these cases emphasize the importance of taking pelvic measurements. Instrumental delivery should, if possible, be effected comparatively early; or even the propriety of resorting to perforation or Cæsarean section should sometimes be taken into consideration. The delay in using forceps, rather than the forceps, is sometimes responsible for the nerve-crushing, neuritis, and paralysis.

According to Hünermann, these accidents should not occur in nor-

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mal pelves, except in face and brow presentations. He quotes two cases from Gerber, in one of which the presentation was of the face, the brow forward and to the right.

It is a striking fact that two sisters of one of my patients died in labor within two months of her own delivery. The three sisters may all have had generally contracted pelves. In the simple flat pelvis and the rachitic flat pelvis, according to Hünermann, if instruments are not used, paralysis is not likely to occur, the oblique diameters of the pelvis being rather above than below the average in these cases.

[TO BE CONCLUDED.]

NOTE ON A REMARKABLE HOUSE EPIDEMIC OF TYPHOID FEVER.

By William Osler, M.D.,

Professor of Medicine in the Johns Hopkins University.

House epidemics of typhoid fever, to the extent and severity of the one here noted, are very rare.

November 26, 1892, I went near Darlington, above Havre de Grace, Md., to see a case in connection with which Dr. Sappington gave me the following remarkable history of a house epidemic of typhoid fever:

Case I.—Wm. B., aged 37, had been ill early in August, at Ocean City, with what was supposed to be malaria. He returned to his home in Baltimore August 8, and on the 13th came here to his mother's home, and was ill for six weeks with diarrhea and delirium; and had, according to the doctor, a well-marked attack of typhoid fever. There had been no previous illness during the summer in the house, and it is perfectly clear that this, the first case, was imported.

Case II.—His wife, A. B., aged 34, was taken ill about the 29th of September with typhoid fever; well-marked case; fever 101° to 104°. At the end of four weeks she was better. She was moved, had hemorrhages, and again was ill six weeks, but ultimately recovered.

Case III.—His sister, M. B., aged 28, was taken ill about the 29th of September, had a very bad attack, and gradually recovered.

Case IV.—J. B., a sister, aged 21, was also taken ill about the third week in September, had fever, not very bad at first, and subsequently had severe hemorrhages, and died October 12.

Case V.—John B., aged 3, son of Wm. B. (Case I), came with his

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mother from Baltimore, and was taken ill about the third week in September. He had a mild attack, with fever, abdominal symptoms, and well-marked rose spots.

CASE VI.—John B., aged 35; fever began toward the end of September. He had headaches, diarrhea, and a tolerably sharp attack. Convalescence began about October 17th; the temperature remained about normal until October 24th, then he had a definite relapse, with fever ranging to 104° and 105°. From November 8th until the 14th there was a period of apyrexia, and then the temperature rose again, and I saw him on the 26th in what appears to be a second relapse. The temperature has been up to 103° and 104°, and on several occasions 105°. On the 25th, for instance, temperature range was between 101° and 105°. He has been delirious, and has had several chills; great pain in his legs, and very great tenderness of feet, especially on the soles.

This case was away from the house at Annapolis a short time, and was the last to take the fever.

CASE VII.—Nurse T., taken ill on the 17th of October, and was removed to the Homeopathic Hospital in Baltimore, where she had a well-characterized attack of typhoid fever, of which she died. She had been in the house forty-two days.

CASE VIII.—Colored nurse of child; was taken ill about the 10th of October, went to Baltimore, and had a definite attack of typhoid fever and died. She had been in the house twenty-six days.

CASE IX.—Miss G., nurse, had been in the house forty-two days, and was taken to Philadelphia, ill with typhoid fever, and died in the third week of the attack.

CASE X.—B. B., a sister, had also, according to the doctor's description, typhoid fever, but she kept about the house, and would not go to bed for any length of time.

During the months of August, September, October and November there were ten cases and four deaths.

The house, a comfortable, old-fashioned, square stone building, is situated on a ridge in the beautiful rolling district of Hartford County, only a few miles from the Susquehanna River. In front of the house the ground slopes rapidly toward the roadway, which runs along a narrow valley. At the back of the house the land slopes more gradually. At a distance of about seventy-eight yards in front and to the left of the stone house, and about two-thirds of the way down the hill, is a comfortable frame house, occupied by the tenant, with a family of nine, of ages from 14 to 85. About seventy yards further down the valley, close to the roadway, is a spring of clear water, close to which is erected the "spring house" for dairy purposes.

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Opening from the kitchen of Mr. B's house, which is a T-shaped extension, there is a covered stoop or porch, beneath the floor of which is a cistern, square, with a depth of nine feet, width of ten feet, the bottom of which is ten feet below the surface of the soil. It is cemented, and was last cleaned about May, 1892. This cistern collects the water from the roof, and at one time also received water from the spring, which was pumped up by a ram. This was abandoned years ago.

Immediately behind the kitchen, at a distance of about twenty feet, is a wood-shed, and a privy, which is situated on the slope of ground behind the house. The bottom of the privy is on the level of the ground. The difference in level between the bottom of the cistern and the top of the privy is, Mr. B. thinks, about ten feet. This practically is the situation of the surroundings. The house itself inside is comfortable; the rooms are large and convenient. There is nothing whatever in their arrangement to call for special comment.

Dr. Sappington writes that "the household consisted of another brother, who did not go into the sick rooms, but ate the food and drank the water, as did also a colored boy aged 15, also the mother (Mrs. B.), also Dr. Sappington drank freely of the spring water, and often had his dinner at the house. A cook could be kept only a short time after the third week, and many things were supplied by their friends."

The source of infection in this epidemic is very difficult to trace. One thing only is certain, namely, that the spring water was not at fault, since living close by and using the water freely was the family of the tenant, every member of which escaped. Two alternatives remain, either the food supplies or the kitchen utensils were in some way infected from the first case, which seems to be by far the most likely view, or the disease was propagated by direct contagion, a view which Dr. Sappington holds very firmly, but which, though not impossible, does not seem to be very likely when one considers the extreme rarity of direct infection in this disease.

Though the surface slope is from the cistern, yet it is quite possible that it may have been contaminated, and if the water was used for washing the kitchen utensils (upon which point it is impossible to get positive information), this would be the most likely source of infection.

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A CASE OF ABSCESS OF THE LIVER FOLLOWING AMEBIC DYSENTERY, WITH REMARKS.

By J. H. Musser, M.D.,

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AND

De Forest Willard, M.D.

Surgeon to Presbyterian Hospital; Professor of Orthopedic Surgery, University of Pennsylvania.

The patient, a male, aged 31, white, galvanizer by occupation, was admitted to the wards of the Presbyterian Hospital on the 16th of November last. He sought the hospital on account of prostration following an attack of dysentery. It appears that throughout the entire summer he had been ailing. He lost appetite, and was dull and depressed in spirits. He had little aptitude for exertion, and observed that his bowels were irregular, constipation and diarrhea alternating. At the same time he felt considerable soreness in the loins when lying down. Vertigo troubled him very much. The symptoms increased in severity and seemed to culminate in an attack of dysentery seven weeks prior to admission. The attack was, clinically, like that of the amebic variety. The stools were bloody, contained mucus, and were discharged with tormina and tenesmus. During the seven weeks of illness he had several exacerbations, each followed by an amelioration of symptoms. Four weeks ago vesical tenesmus began, with frequent micturition. Three days prior to admission the diarrhea ceased.

Before detailing the state of the patient at the time of admission, it may be well to remark that he resided in this city in a most unsanitary neighborhood, and had been accustomed to drink water from the usual city supply.

For possible aid in the diagnosis we further gleaned from the patient that he was a widower, the father of five healthy children, that he had the usual diseases of childhood, including smallpox, and typhoid fever at twenty-one; that his personal history regarding habits, etc., was good, and that he never had any venereal disease. His mother, one sister and three brothers are in good health. The father died of some gastric affection, and two sister of phthisis florida. The grandparents of the previous generation were very healthy.

On admission the patient was very weak, emaciated and pale.

The anemia was striking, and on examination of the blood it was found so reduced that 2,800,000 red corpuscles were counted in a cm., with proportionate decrease of the white corpuscles. The patient was

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so weak as to be compelled to remain in bed. He weighed thirty pounds less than in health. The cerebro-spinal system was free from disease. He had no appetite, a furred tongue, and some flatulent dyspepsia. His bowels had not been moved for twenty-four hours. An enema was necessary to relieve the impaction. No mucus was passed. The abdomen was not distended. The liver and spleen were not enlarged.

The lungs were normal. At the pulmonary and mitral areas systolic murmurs, low in pitch, were heard, due to anemia. Murmurs from similar cause were heard in the vessels of the neck. The urine was abundant, of low specific gravity, and did not contain pathological elements.

Diagnosis: anemia following dysentery.

With rest and careful feeding, strength returned and the color improved.

On December 1 the patient began to complain of pain in the lower portion of the right chest, anteriorly. It increased in severity and soon became localized to an area the size of a half-dollar in the seventh interspace, anterior axillary line. On account of its severity, the patient was compelled to lie on his back. Movement increased the pain, after a short time, and lying on the left side, or sitting in the erect position caused agony. The liver was enlarged upward. The upper limit of dulness was found at the fifth rib anteriorly. The lower border could not be felt, and on percussion the limit of dulness was not beyond the edge of the ribs.

The remaining organs were normal. The cardiac and vascular murmurs had lessened and the blood increased in richness to 3,800,000 red corpuscles per cm. Appetite remained poor, and there was constipation. Has gained in flesh and strength.

December 7. Pain has continued in spite of blisters and other external applications. Morphia was required. The liver continued to enlarge. The upper border of the liver in the mid-clavicular line begins in the fourth interspace, in the axillary region in the fifth interspace, and posteriorly, one inch below angle of scapula. The hepatic region has increased in size, but there is no local bulging. The lower right chest does not expand freely as compared to the left. There are no friction sounds or signs of pleural effusion. Anemia much improved, and patient has gained flesh. There has been no fever but occasional sweats. Appetite not improved.

December 15. Pain not relieved. Liver about the same size. The upper limit of dulness is not movable. The organ does not extend beyond the margin of the ribs. When the patient turns on the left side the extent of dulness lessens in the axillary region, and is found

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between the fifth and seventh ribs. On his back the lower border of dulness extends to the margin of the ribs. The dulness begins at the ninth rib, in mid-scapular line. Appetite poor. No fever. Strength greater. With a fine hypodermic needle introduced in anterior axillary line in seventh interspace, pus was withdrawn. Admitted to surgical ward.

During the time the patient was in the hospital ward, the stools were not studied because of the absence of mucus or any material likely to contain ameba. In fact, constipation had to be combated. Nevertheless, the diagnosis of abscess of the liver secondary to dysentery was made because of this possible sequence, and because of painful enlargement of the organ, an enlargement that could not be satisfactorily explained by any other pathological process. Persistent poor appetite, in spite of improvements in general health, was also believed to be significant of the presence of pus. The above conclusion was arrived at notwithstanding the absence of fever. The interesting features of the case are worthy of consideration seriatim.

(1) *Improvement in General Health in Spite of the Extensive Suppuration.*—This seemed to the writer remarkable. The blood count showed improvement; the weight and strength increased. If to this is added the absence of fever, considered in the next paragraph, it is seen that the general phenomena did not indicate the gravity of the local process.

(2) *Fever.*—The absence of fever is worthy of comment. The temperature did not vary from the normal during the entire time in the medical ward. At different periods a two-hour temperature observation was taken with negative results. Rigors were never present, and slight sweats only occasionally noticed. The latter were not sufficiently pronounced to be suggestive.

(3) *Loss of Appetite.*—The writer has previously suggested the importance of this symptom in obscure cases of suppuration. If the loss of appetite can be explained in any other way, as by local gastric disorder, it is not noteworthy. But if there is loss of appetite without cause, and if such impairment is attended by slight nausea or revulsion at the sight of food, or after a few portions are taken, it is highly suggestive of suppuration and pus absorption. The writer has seen these relations most strikingly in pelvic disease and suppuration about the appendix. The symptom is not an indication of the seat of pus, but that somewhere pus formation with its imprisonment is in progress. Unexplained loss of appetite, without fever, but with failure in health, may serve to explain the nature of a local process which does not show any signs of pus.

(4) *Pain.*—On account of the profound anemia, at first intercostal

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neuralgia was thought to be the cause of the localized pain. Although the anemia improved the pain increased in severity, and was the cause of attention to the liver. The pain was increased by pressure and by movement. No localized peritonitis or pleuritis could be detected to explain the symptom. Pain in the right shoulder was not observed.

(5) *Enlargement of the Liver and of the Affected Side.*—The extension of the enlargement upward was of interest. The writer has had the privilege of observing a number of cases of hepatic abscess. In all save one the increase in size of the organ was downward, and the organ itself, or the portion in which the abscess was situated, could be readily outlined below the ribs in the hypochondriac or epigastric regions. While there was no distinct localized bulging, an enlargement of the right lower half of the chest could easily be detected.

(6) *Pleural Friction Sounds.*—It may be noted that friction sounds and other physical signs of inflammation above the diaphragm were absent. This is all the more remarkable because of the close proximity of the abscess to the diaphragm.

(7) *Character of the Pus.*—It partook of the character so well described by Councilman and La Fleur, of an anchovy-sauce like fluid. The ameba dysenterica were found readily. In addition to the usual appearances of purulent fluid pigment, and leucin and tyrocin crystals were found in abundance. The case shows that amebic dysentery may arise in this locality.

Resumé.—Amebic dysentery; anemia; pain in the hepatic region, enlargement of the liver upward, loss of appetite. On exploration, pus found. Diagnosis: abscess of the liver.

OPERATION.—Admitted to surgical ward December 17, 1892. The patient suffers no pain. Temperature normal. Says that he feels as well as he ever did in his life. Physical signs as before described by Dr. Musser. Large aspirator needle in the seventh interspace at the depth of two and a half inches secured pus. Withdrew the trocar and replaced it with a blunt plunger. Canula used as a guide to the abscess, and was kept in situ until pus was reached with the knife.

An incision, three inches long, was made in the seventh interspace; three inches of the seventh rib were resected subperiosteally without hemorrhage and without opening the pleural cavity. When the pleural cavity was opened by an incision, the lung slid upward, but there was no great collapse of the lung, nor great depression of the patient. The pulse became slightly more rapid, but did not lose force. Pressure upon the right ribs permitted only a small amount of air to enter the pleural cavity. The pleura was then slit two inches. With a long curved needle four catgut sutures were passed from the parietal layer of the pleura through the diaphragmatic layer, and out

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again through the parietal layer. Two of these stitches were parallel to and a little longer than the wound in the pleura; the other two united the two ends of these first sutures well beyond the angles of the pleural incision. These stitches enclosed a rectangular parallelogram, and were tied separately over the four sides surrounding the area of incision, thus closing the pleural cavity against air and pus. The stitches were tied lightly, so as to approximate the two layers of the pleura, and not so tightly as to cut the tissues, since adhesive inflammation only was desired.

With the canula as a guide, the liver was then opened through the diaphragm, and a pint of chocolate-colored pus evacuated. The cavity was thoroughly washed out with hot distilled water, and a large drainage tube inserted. A finger could be carried round the walls of the cavity, but could not detect any softened spots downward. The finger was unable to reach the bottom of the cavity. The wound was packed with sterilized gauze. No hemorrhage occurred throughout the operation. The amount of pneumothorax was slight. The patient suffered no dyspnea during etherization. His pulse and general condition wert good.

Dyspnea during the remainder of the day and night of operation was very marked, but there was but little cough, and no serious collapse of the lung. The temperature on the third day was normal. There were no signs of pleurisy, and the pneumothorax was diminishing. The patient was much stronger.

On the sixth day he was greatly improved. The quantity of the pus steadily decreased. His appetite was good, and his general health improved. The drainage tube was slightly shortened at every dressing, and was removed entirely at the end of the fifth week. The patient had no bad symptoms whatever during the course of the treatment. At present writing the discharge of pus amounts only to a few drops daily.

The chief interest in this case consists in the route taken to reach the pus. The suturing of the two pleural surfaces in contact over a parallelogram of tissue so as to prevent infection from entrance of air and pus, was in this instance, effective. The prompt adhesion of two pleural surfaces brought gently into contact has been illustrated by myself in various operations upon the pleura of dogs,[1] the adhesions having taken place, in some instances, within twenty-four hours, and in all without pain or evidences of pleurisy. These experiments made me hopeful of union in the human subject, and I was not disappointed.

[1] Pneumonotomy and Pneumonectomy, Transactions Philadelphia College of Physicians, November, 1891; Intrathoracic Surgery, Transactions Am. Surg. Assoc., 1891; UNIVERSITY MEDICAL MAGAZINE, February, 1892.

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One or two points in technique are important. The sub-periosteal resection of rib permits late opening of the pleural cavity, which is important. After the opening is made, if violent dyspnea results, partial closure of the opening by pressure or a plug of gauze is helpful.

Again, the retention of the canula as a guide to the pus is a helpful procedure, since good surgeons have missed a pus collection in the liver, even when their incision was within a quarter of an inch of the depot.

HYSTERICAL SEIZURES RELIEVED BY HYPNOTIC SUGGESTION.[1]

By Judson Daland, M.D.,

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The case that I wish to report this evening occurred in an unmarried woman, aged 18, living in the city. She says that her mother is living and well, and that her father died from an accident. She has no brothers nor sisters. As a child she suffered each winter from tonsillitis. At the age of 13 she had pneumonia, and later an attack of measles. At the time of teething there were no convulsions. She was always excitable, and invariably fainted at the sight of blood. Menstruation began at the age of 10½ years; at first irregular, sometimes occurring but once in two months, and at other times every *three* weeks. The pain was so great during the first two days of menstruation that she has been compelled to go to bed. The quantity of blood lost was considerable, and menstruation usually lasted ten or twelve days. She states that during the last six months she has frequently suffered from belching after eating; occasionally there is vomiting, and often she is attacked with convulsive movements and unconsciousness immediately after taking food. The matters vomited were acid, and bitter to the taste. Occasionally before and after menstruation the breath is fetid. She averages two movements of the bowels weekly.

On March 29, 1892, at 7 P.M., the first attack occurred, following a vomiting spell. She fell from the chair to the floor entirely unconscious; the face was white, but there was no convulsive movement, and

[1] Read before the Philadelphia Neurological Society, January 23, 1893.

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the entire attack lasted ten minutes. She had no recollection of the attack, but felt as if she had fainted. During the day there was nausea and the appetite was impaired.

The second seizure occurred six days afterward, and in falling she bruised her arm severely. This attack was like the first, but lasted one hour.

Four days later a third attack occurred, which was similar to the first. They have occurred as often as seven times in a day, and average one daily. She has noticed that fright is able to induce a paroxysm.

Her attending physician, Dr. W. E. Robertson, witnessed one of these seizures, and gave me the following description:

He found her in opisthotonos. This was followed by convulsive movements, especially of the diaphragm, accompanied by borborygmi. She remained unconscious twenty minutes. Anesthesia was complete, and the introduction of pins under the nails produced no evidence of pain. The expression of the face was normal; the pupils were equal and of average size, and varied with respiration; from time to time there were strong efforts to vomit. In none of these attacks did she bite the tongue, and on one occasion she described a vision that occurred to her.

She was hypnotized on September 6 by holding a laryngeal mirror nine inches from the eyes on a horizontal level, by the aid of which light was reflected from a student's lamp. Somnambulism was produced in four minutes. In three minutes the eyelids dropped in the ordinary manner, and complete hypnosis was secured in four minutes. Immediately before the hypnotic state was secured the pupils rapidly dilated and contracted. At first the sleep was slight, but upon suggestion it became profound. Upon raising the right arm, after momentary hesitation it dropped completely relaxed, as did the right. The suggestion was then made that the left arm was paralyzed and that the skin on the dorsum of the left hand was anesthetic. Puncturing the skin produced no objective sign of pain, and the patient said that no pain was experienced, whereas, when the corresponding cutaneous surface of the right hand was punctured, the hand was immediately withdrawn, and pain was complained of. She was then commanded to raise the left arm, which was impossible; when commanded to raise the right arm this act was performed immediately. She was then told that upon awakening she would again become somnambulistic upon gazing into the eyes of the operator, which was accomplished. Finally it was suggested that no attack occur until the following Friday at 9 A.M., when she was again to be hypnotized. The following Friday she was hypnotized in the same manner in three minutes, and the same phenomena were reproduced. Again the suggestion was made that no attacks would occur

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until the following Friday. She came as had been agreed upon, but I was called away unexpectedly. She reported that upon entering the office she felt a peculiar, indescribable sensation like that experienced when in hypnotism. She returned the following Friday, but I was still at the Swinburne Island Hospital, and again she experienced the same sensation.

On October 1, or fifteen days after the last hypnotism, she had a seizure excited by a quarrel with one of her relatives. On the succeeding day she had two attacks, which were induced by a great disappointment. This statement was made on October 6, and when hypnotism began it was obvious that she was endeavoring to resist, but she became somnambulistic in less than four minutes. Her pulse was 132 per minute. No suggestions were made, but when sensation was tested it was found normal, with the exception of the skin on the left hand, which was completely anesthetic. The left arm was in a condition of paralysis, but the other muscles responded readily to the will.

It should be remembered that this paralysis of motion and sensation in the left arm and hand was suggested at the first hypnosis, and that they occurred voluntarily at this meeting. It was then suggested that the following morning at 10 o'clock she would write a letter describing her condition, which she did, and a second suggestion was made that in five minutes after awakening she would complain of intense pain in the left ear, which would last but one minute. This was also successful.

On October 14 she was again hypnotized with the same results. After each hypnosis she expressed herself as feeling stronger and better. Two days before she was hypnotized by Dr. Robertson, and remained in that condition twenty minutes. Every suggestion was obeyed, and she presented the same phenomena regarding the left arm and hand as has been previously narrated. This same member was rendered cataleptic by suggestion, and she was informed that two minutes after she awoke she would not be able to see anything for thirty seconds. At the expiration of two minutes she complained that she could not see, and attributed it to the glasses that she wore.

There has been no hysterical seizure since October 1, and she considers herself in good health.

To-day, January 23, she called and stated that she had had two very slight attacks, from which she fell to the ground, but was perfectly conscious, and she also says that the attacks were totally different from the original attacks. They were superinduced in each case by severe gastric irritation. She was hypnotized in less than two minutes, and presented the same phenomena, and also obeyed a post-hypnotic suggestion.

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MECHANISM OF PHYSICAL CULTURE.

By Randolph Faries, M.D.,

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One will readily admit that the success of anything depends upon the amount of energy manifested in it, and, therefore, the greater the energy the greater the success. To-day there is a feeling displayed against "Physical Culture" by some; and why? Because there are associated with it some things which are detrimental. These are gambling, celebrating, attempting feats beyond one's strength, over-work, excitement and the like. Suppose we discuss one or two of these. Take excitement. Does this not have a bad effect upon the student of physical culture? Yes, when it exists; but exercise can be prescribed that will be absolutely devoid of excitement. The exercise must be adapted to the student's constitution and temperament, and then no excitement will accompany it. Many will ask, "Is not the excitement produced by competitive sports injurious?" This I would answer by saying I have seen over three thousand competitions of all sorts, have studied some of the competitors from year to year during the past ten years, and have never seen a single case of excitement that produced a bad result. Could so much be said of mental competitions?

Gambling is one of the greatest of exciting evils; not only has it found its way into every conceivable avocation, but it has also brought ruin to many a man who might have been an honor to his college. Over-work and injudicious exercise have also ruined a good constitution. There will be found, however, in every college, men who always take *judicious* exercise, and these men have good constitutions and stand well. There is not a shadow of a doubt, in my mind, but that a body having a symmetrical mental and physical development will last longer, endure more, accomplish greater things and attain better results than one that is lacking in this respect. In analyzing the frame of an individual we see that its shape, capacity and size are determined from the beginning of its organization, and each frame contains within itself the power of perfecting itself (unless diseased); but one must remember that the attainment of perfection is governed by certain factors, agents and laws which regulate and sustain our bodies only when properly observed and correctly followed, and if these are neglected or abused we subject ourselves to disease which may result fatally. We know from scientific study that growth and development are limited; the former, in the majority of cases, being reached about the age of twenty, while the latter does not reach its limit till the twenty-third or

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twenty-fourth year, and we must constantly bear in mind that there are certain things which retard growth and development; for example, tobacco, alcohol, excessive exercise, too little sleep, poor food, etc. Primarily, the *process* of development accomplishes itself when an individual is born, and each organ has received its *relative* position, size, shape and function; but the perfecting of these is to be fulfilled as one continues to live, and we find that the final growth and development differ widely from that at birth. What is it that makes this difference? Function; but exercise sustains function. As an illustration of this I can quote no better instance than that which exists in the case of the fish in the Mammoth Cave. Although these fish have no sight, yet their remote ancestors possessed this special sense. I think this clearly shows how important exercise is for the development and maintenance of function, and this applies to every organ and system in the whole body. In exercise, no matter what our purpose may be, we should always remember that some of us have idiosyncrasies which must be respected. It is very important to consider the time of day, occupation, habits, strength of constitution, age, bathing, clothing, diet, ventilation, sleep, etc. Many a case of disease has been due to neglect of one or more of these. Need I add that the intemperate should be told of his bodily irregularities to enable him to realize that he has trodden upon the laws governing his health. Nothing is less understood in its need, aim, nature, application and influence than exercise, and when wrongly applied, and what is still worse, *abused*, it is capable of producing results that may prove fatal. For example, a fatal result may often follow exercise because there has been a want of knowledge as to the proper kind to be indulged in. A person with consumption may take exercise that is too violent, cause a hemorrhage and die. Here it may be proper to say that exercise which may be child's play for one will often cause the greatest exhaustion in another. Too frequently do we hear persons say: "My appetite is poor; I get tired very easily; I am nervous and cannot sleep." What does all this signify? That, in a great many cases, there has been a want of exercise. Moreover, there is a class of persons who have a disinclination to or a dislike for exercise. There must be a cause for this, and it will usually be found among inherited tendencies, such as tuberculous, rheumatic, or nervous predisposition; or will be due to luxurious living or a sedentary occupation. Would it not have been better for such an one to have studied the laws governing his physical nature than to have died prematurely? Exercise, like everything else, is estimated by the good that is accomplished, not by what it is possible to accomplish. The fundamental basis of all exercise is movement produced by muscular contraction, overcoming resistance,

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thus doing a certain amount of work. We have in our bodies two sets of muscles: voluntary or striated, and involuntary or non-striated. In the first group we find our will has the power of controlling the movements, while in the second group it has no such power. Of the former class the distribution is over the bones, and the function of this group is to move these; while the latter class is found chiefly in the cavities of the body, *e. g.*, the heart, stomach and others.

We shall deal chiefly with voluntary muscles, and endeavor to improve ourselves by bringing these into a symmetrical development. Physiologists have shown that the movement of any muscle depends upon the amount of stimulus it receives, and the stimulus must be strong enough to cause the energetic contraction of it. This is one of the most important principles we have to consider, because it is by overcoming resistance that our blood supply is increased, waste material eliminated and new products taken up. Our body is composed of numberless cells, and these are continually dying and being reproduced. If it were not for this reproduction we should soon die. These cells, when studied closely, are seen to be of different shapes and sizes, and have different functions. How is it that a balance is maintained between the death and reproduction of these cells? Through our organs of digestion, in which the food is changed into certain substances, and being taken up by the blood is carried through the arteries and deposited in the tissues. Development results because we are so constituted that our body in health always assimilates more material than it excretes, and as soon as we go beyond this our tissues degenerate. Exercise, then, can be fairly said to be the chief agent both in the breaking down and the building up of the bodily tissues. The more rapid the exercise the greater the destruction and the faster the repair. What is it that impels the blood through the muscles? Contraction of muscular fibre caused by different stimuli, such as interchange of gases, electricity, cold, heat, etc. The ability to accomplish work of any kind depends greatly upon muscular and respiratory capacity, but the great regulator of our body is the nervous system, and the greater the nervous energy the better and more perfect the results. What does an individual attain by judicious exercise? He increases his muscles in size, form and power as well as function; he betters his mental capacity by increasing the cerebral blood supply, thus substituting new tissue for old, and he has maintained his health by keeping his mind and body active. The light thrown upon exercise by physiological research has been marvelous during the past ten years, and its advancement from a scientific standpoint has been wonderful. Suppose we go back to the time when exercise was first begun. We find as early as old Grecian and Roman times exercise was

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indulged in; not scientifically, however, because they knew nothing of physiology, and the most important tissue of the body, the blood, was not understood by them; indeed, its circulation was only discovered about 250 years ago (1642) by Harvey, and fifty years later a paper was read before the London Medical Society, in which the impossibility of such a thing was argued. How, then, did the Greeks and Romans know what to do for training? They observed that exercise developed certain parts of the body, and whenever there was a want of development, a lack of symmetry, or a weakness, they supplied this by exercise. They also observed that the strength and development of any part was directly proportioned to the amount of judicious exercise, but they did not know that this was ultimately dependent upon the blood supply, neither did they know that the human frame was composed of numberless cells, and that these were constantly dying and being reproduced, thus throwing off old material and forming new, and that this resulted in increased growth and development; they simply noticed that work was what muscles needed, and they gave them work accordingly. They did not understand the mechanism of respiration, and considered respiratory exercises a hindrance to development, little dreaming that they eliminated one of the chief products of waste through their lungs; yet they did observe that the power of sustaining increased respiration depended upon exercise of the respiratory apparatus, and consequently they laid great stress upon such exercises. This was not the only thing they noticed; in addition, they paid attention to their skin, because by this means their bodies maintained their normal temperature. Little did they suspect, however, that the production of heat was due to an increase in circulation which was governed by a central nervous system that kept a constant balance between heat production and heat dissipation. They had not the slightest idea of the structure and functions of the skin, little realizing that its function was four-fold, viz.: To maintain bodily temperature, serve as a protective, eliminate waste products, and assist in respiration. They did note, however, that the amount of hindrance produced by clothing was dependent upon the quality and quantity of the garment, and hence they reduced this to the smallest amount possible. Their aim was individual culture, and they adopted a system capable of cultivating coolness, decision, accuracy, patience, perseverance, and courage; hence we find their exercise consisted in running, chariot races, wrestling, boxing and the like. And what was the object of all of this? Read the first line of Virgil, and do we not see, "I sing of *arms* and the man, *arms* and *the man*," which indicates that the object of their training was to prepare their youth for war. Some of you have already asked yourselves the question perhaps, was nothing done for

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those whose constitutions would not stand such a system of exercise? No; and why? Because there was no medical science to guide them, and they were left to get along the best way they could. But is such the case to-day? Physical culture does not aim to make a champion athlete of a student, nor to favor those blessed with the constitution of a Hercules. What it does do is to help those whose constitutions need it to attain better health mentally, morally, spiritually, physically, and to prepare students to enter upon their life's work fully equipped with a body that will be able to withstand the various strains which it will have to encounter; and it does this by affording exercise of so many kinds that the wants of every student are met. There is just as great a battle existing in our great republic to-day as there was in Grecian or Roman times, the only difference being that they used their physical power, while the men of the present age fight with their brains, each striving to reach a goal higher and more noble than his antagonist; the battle that is fought with the brain for a weapon is one for knowledge and life, the object of each being a higher life. We all know how hard the struggle for this is; how many hardships, trials, disappointments, and a thousand and one other things each individual is constantly subjected to; hence what is necessary? *Health!* This is the key to all success, and without this man's accomplishments are far from what they should be. As we grow older we find our struggle for knowledge and existence grows harder and harder; we have to encounter many things that test our brains beyond their limit; we become worried, the stimulation to succeed is too great, we are apt to work too long, sleep too little, allow little or no time for our meals, our frames easily become tired, and finally our nervous system, no longer able to supply us with impulses, gives way, and we find disease has overtaken us. Does it not seem worth the while, then, to have sought a preventive for this before it had taken hold of us, and is the remedy not very simple when one realizes that disease could have been avoided by an antidote consisting of physical exercise properly indulged in? Physical culture seeks to establish a proper balance between mind and body, and in so doing prepares each one who studies it faithfully for a more perfect manhood, making him better able to accomplish results that would otherwise be impossible.

I cannot impress you too strongly with the fact that exercise does not aim to help you to attain strength which is capable of producing the power of accomplishing great feats. What it does accomplish, when properly indulged in, is the bringing of the whole body into such perfect symmetry and harmony that each person may pursue his calling with pleasure and usefulness to his fellow-men. There are thousands of men to-day uncomplaining, eager, earnest and faithful who are

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following their vocation, suffering with low spirits, languor, pain, fatigue, fearing lest their nervous systems will give way, and in fact with their whole body impoverished, when good health and an absence of all these symptoms could easily have been possessed by a little careful and well-regulated exercise. One must not mistake strength for health; they are closely allied, yet they are not the same; a person may possess one and not the other. Strength may be manifested by one system of the body; *e. g.*, nervous, muscular, circulatory, digestive or osseous. There are many consumptives who have great muscular strength, yet they have not health. Health is freedom from disease, or still better, as Dr. Richardson puts it, "perfect organization in perfect action," and does this not imply that every part of our body must be sound physically as well as mentally? Too often do men seek to gain strength without the slightest regard for their health, and in so doing they frequently jeopardize their constitutions to such an extent that they ruin their lives forever. Most men seem to think the development of the body in a special way is all that is needed. You have, no doubt, frequently seen a man with large biceps and pectorals, while his legs seemed scarcely able to hold his body, so poorly were they developed. We learn from this that there is a local weakness in one part of the body, while in the other there is an excess of strength; consequently we see that local exercise does not yield health, because it strengthens one part at the expense of another. This teaches us to be general in our exercise and not to specialize. Our life-work requires that every part of us should be in the best possible condition. There is no occupation, no state in which one may place himself, no position in life in which a well-cultivated body will not be of extreme value to man. Every day we see men falter not because they are slaves to their calling, but because they never exercise. Would it not have been better to have acquired a little bodily stamina and thus have been able to finish the work they began than to have left it to a fellow colleague to finish? Some argue that a healthy, vigorous body and an active, bright intellect are incompatible. Such is not the case; not only from actual experience, but from a scientific standpoint. Science long ago confirmed the fact that the body assisted the brain. Prof. MacLaren, of Oxford University, sums the argument up as follows:

"The intellect can rarely attain, or if it already possesses, can rarely long retain, a commanding height when the bodily functions are impaired; that the body itself will be at its best and most worthy condition when its claims are most fully shared by mental occupations, and that the healthy condition of the mind, produced by sufficient and natural employment will react most favorably upon the body, can never be doubted for a moment; yet we continually find the one war-

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ring upon the other. We shall find the reason for this in overlooking the laws which govern both body and mind. The mind acts through a material organ—the brain—in common with other organs of the body; is subject to constant decay and constant renewal from the same vital fluid; these processes being accelerated and its strength and vigor consequently augmented in proportion to its activity. But in common with other organs also, if this activity is carried beyond certain limits, its waste exceeds nutrition, and its strength gives place to weakness. The mind, then, is dependent upon the blood for its material support, and its healthy action is dependent on its receiving an adequate supply of healthy blood. Moreover, the organ of the mind—the brain—being subject to the same laws as other organs, requires similar alterations of rest and action to maintain it in its natural state of efficiency, and if either of these states be deficient, in excess, the brain, and consequently the mind, will deteriorate. If, therefore, the cultivation or exercise of the mind be neglected, it will, of necessity, be weakened in precisely the same manner as the other organs are weakened by insufficient use, will deterioriate in strength and vigor and the power of enduring fatigue. If, on the other hand, the exercise of the brain be excessive, that is, beyond the point where the nutrition is equal to the waste, it will suffer in the same way and to the same extent that other organs would."

We all have a desire to get the best education possible, and we wish to know the best way to accomplish this. It can be done by grasping every opportunity we have, and endeavoring to get all out of it we can. We should never exercise our brain to such an extent that it becomes overworked, nor should we subject our bodies to such an abuse. Strive to seek moderation in all things, at the same time remembering that there is a limit to our mental and physical capacity. It is well for every one to ask himself at the outset: What is my object? It should be to keep every system in his body in a condition that will maintain life in the best manner possible. Each one of us should be particularly careful in training his mind so that it will receive an amount of culture capable of developing and strengthening it. By keeping within certain limits we can reach a point of activity, vigor and self-application which will impart to us the power of enduring mental work with the greatest ease; the older we grow the more shall we be capable of enduring, and when we are called up to strike a stronger blow we shall not take our mind by surprise. What has the mind been doing all this time it is in good health? It has contributed to the health of the body; and what I have just said in reference to the mind holds good for our bodies. Some of you will say my occupation will need no cultivation of body. A greater fallacy never existed, and

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have I not clearly shown this by proving, if one part or organ of the body is neglected it will lose its function and finally disappear entirely. To some I may seem excessive in my desire to impress you with the importance of bodily culture; but never let it be thought for a moment that I would have the mental qualities neglected. The brain needs a system of regular training as well as the body in order to develop it; the cultivation of the faculties which lie within it cannot be begun too soon, and we should always be careful to regard the circumstances surrounding us. Giving too much time to physical work is, to my mind, just as bad as devoting too much time to mental work. How often do we hear of great thinkers who have the power of unfolding marvelous thoughts, but do not possess the bodily strength of a child, and on the other hand do we not also see men who never know what bodily fatigue means, because they are not possessed of good mental quality, and is not such a condition in either case to be pitied? Exercise may be classed under four heads—light, medium, heavy and arduous—and under these heads we can class every kind of exercise from the simplest to the most complicated. We all know why one arm is larger and more fully developed than the other; we all realize how much easier it is to do things we have done before. But does this not apply to our mind as well as our body? Have not a great many of us during our college curriculum chosen those studies which were easiest for us, simply because we had already had mental exercise in them? Those who did not do this, but chose studies which required new efforts, certainly have attained better results because they have taken a broader view of knowledge. Why is it that those interested in intellectual pursuits alone fail to see the good in exercise of the body? Because they imagine it has to do exclusively with muscular development. If they knew that it developed every tissue in the body, perhaps they would investigate it more thoroughly, and find the benefit of it. In nearly every institution in the world, no matter whether school, academy or college, many kinds of malformations are to be found. The great majority of these can be rectified, however, and those that cannot be cured can at least be benefited. Some of you have no doubt seen a student with a pigeon breast, hollow breast, drooping shoulders or carrying his head in a drooping position, or with a curved spine. What has caused this? Lack of proper muscular development. The same reason holds good for the narrow chest. Persons with well-regulated exercise have been known to increase the power of thoracic expansion from two to four inches in as many months. As a rule, if the chest is poorly developed the arms will suffer to a greater or less extent, because certain muscles are attached to the humerus as well as the ribs, therefore you can readily understand if these muscles suffer

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the activity of the humerus must also suffer to a certain extent. If the chest muscles had been properly exercised such an increase in expansion as I have just mentioned would never have been needed; in fact, it would have been impossible in so short a time. Under no circumstances should a student attempt to do any feat that calls for undue exertion, because his heart and lungs are not in a proper condition to stand the strain, his muscles have not the tonic power they should contain, and the nervous apparatus will be required to supply an excessive amount of energy, thus taxing it beyond its limits and subjecting it, as well as the heart, lungs and muscles, to injury from which they may never be able to recover. One should always exercise within the dictates of reason; yet how many do this? If they knew that increase in exercise often meant decrease in muscular strength and development, perhaps they would consult their conscience more frequently.

PNEUMONIA WITH MARKED ABDOMINAL SYMPTOMS.

By Frederick A. Packard, M.D.,

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The patient whose history is given below presented sufficiently anomalous symptoms to warrant a report of his case.

He was a male, white, aged 40 years. He was born in Germany, and came to America a few years ago. Owing to his condition upon admission to the hospital there was considerable difficulty in obtaining a clear history of his illness, his answers being given with reluctance and being in many points contradictory.

His family history presented no points of interest, save that his father died of "hemorrhage from the stomach." He himself has always had remarkably good health. He denies former venereal disease; has partaken freely of malted liquors, drinking ten or fifteen bottles of beer daily. He works in a beer bottling establishment.

He was brought to the Episcopal Hospital on the night of August 26, 1892. On the morning of that day he went to work as usual, but about noon was suddenly seized with violent pain in the hepatic and umbilical regions. This pain persisted, and almost immediately after its onset there was great difficulty in breathing and severe headache. There was no vomiting, and the bowels, previously regular, were not disturbed. Upon admission he was groaning with pain, lying curled upon the right side with the thighs flexed upon the

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abdomen and the legs upon the thighs. The face was pale and expressive of much suffering. The tongue was but little coated, the conjunctivæ clear. There was no hiccough. The left lung and the posterior and anterior portions of the right side of the thorax showed no change upon physical examination. The heart sounds were normal; spleen and liver not enlarged. The abdomen was very much distended, smooth, exquisitely tender upon pressure in the umbilical and hepatic regions. The skin of the abdomen was even paler than would be expected from the marked pallor of the rest of the skin and the mucous membranes. The pallor of the abdominal surface was not uniform, there being a somewhat marbled appearance in the right flank and in the hepatic region, with some distension of the superficial venous trunks. The temperature was 99° F.; respirations 26, and pulse 76, small and weak.

Owing to the sudden onset of severe abdominal pain while at work, the intense distension of the abdomen with marked tenderness, and the apparent absence of ~~other causes~~ for the presence of his symptoms, a diagnosis of intestinal obstruction from volvulus or intussusception was made in spite of the location of the pain. The only reservation in our minds was the possibility of a latent abscess of the liver with rupture into the peritoneal cavity. The latter was held as only a possibility, owing to the absence of collapse, such as would have been expected after such an accident.

Thorough examination being rendered impossible by the tenderness on pressure, the patient was etherized. During anesthesia nothing further could be detected, no localized abdominal tumor being found, and rectal examination proved negative. While under the anesthetic a large enema of olive oil was given; this brought away a small quantity of fecal matter. The question of surgical interference was considered, but it was negatived—as events showed, wisely—in view of the absence of positive signs of a definite lesion and the good general condition of the patient. During the time that had elapsed since his admission there had been no cough and no disturbance of respiration other than a slight increase of frequency, not out of proportion to the large amount of abdominal distension.

Upon the next day there was slight improvement, in that the tympany had diminished after the passage of a copious bowel movement. The abdomen was, however, still much distended, and showed the same marbled appearance as on the preceding day. He was able to lie upon the back for a short time, and it was then found that there was an area of marked dulness with tubular breathing over a space of about two inches diameter, having its centre in the anterior axillary line, and running into the line of liver dulness.

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This area of consolidation escaped notice upon the day after admission, owing to the decubitus upon the right side, and the lack of thorough exploration of every portion of the thorax. The latter was thought to be unnecessary, in view of the total absence of pulmonary symptoms and the increase of pain upon movement of the patient; while during anesthesia, when the patient was turned upon the back, physical exploration of the small unexamined area of the chest was not thought of. In seeking for an explanation of the marked abdominal symptoms our first thought was that the pneumonia might be secondary to some infra-diaphragmatic inflammatory condition. The liver was carefully examined for evidence of abscess, but without result, and there was no evidence of an accumulation of pus between liver and diaphragm.

Upon the third day after admission the breath sounds over the area of dulness could not be detected, and a hypodermic needle was introduced into the centre of the dull area. A little bloody serum was withdrawn, which showed under the microscope red blood-cells and numerous leucocytes. (At that time we unfortunately had at the hospital no facilities for a bacteriological examination.) Meantime the patient had become more comfortable, the abdominal distension had diminished to a great extent, and his general condition was much better.

The physical signs—dulness on percussion and absence of breath-sounds—continued until September 3, 1892, when the notes state that the breath-sounds were barely audible over the affected region. During all of this time there was nothing to point to the lungs as the seat of disease, save for the physical signs, and these remained limited to their original area.

By September 6 the effusion was entirely absorbed, and the breath-sounds were plainly audible, and but little changed from the normal. From this time onward until his discharge from the hospital, October 14, 1892, his condition steadily improved, and nothing further occurred to throw any light upon the peculiarly prominent abdominal symptoms. Upon his discharge from the hospital he had completely recovered.

In seeking for an explanation of this, to me most interesting, case, I can arrive at but one conclusion; there must have been a limited pleurisy and pneumonia involving the lower surface of the lower lobe of the right lung, and possibly, by contiguity, causing localized peritonitis on the under surface of the diaphragm. While early vomiting is by no means unusual in cases of pneumonia, especially in children, I have never seen a case with *signs* as well as symptoms pointing to infra-diaphragmatic trouble to such an extent as to mask the pulmonary condition.

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The case shows very markedly the entire absence of symptoms usually present in pneumonia. There was no chill at the onset; the temperature was not high; cough was absent during his whole stay in the hospital; the respiratory rate was not very much increased; there was no dyspnœa; catching respiration was entirely absent, and expectoration did not occur.

Whether the explanation given is correct cannot, of course, be determined, owing to the fortunately favorable outcome; but none other seems to account for the severity of the abdominal signs and symptoms, unless we suppose that there was a coincidence of localized pneumonia, with volvulus or intussusception, the latter having been remedied by the large enema. This latter theory seems extremely unlikely, and the explanation given above seems to be the true one, viz., that there was present a localized pneumonia in the lower portion of the lower lobe of the right lung, with concomitant pleurisy and with extension through the diaphragm to the parietal peritoneum.

Between the time of writing the above report and its transmission to the editors I have had the opportunity of observing, in the practice of Dr. Morris Longstreth, a case in some respects reminding me most forcibly of my patient. This gentleman was suddenly attacked by chill which, as proven later, indicated the onset of a central pneumonia of the lower lobe of the right lung with concomitant pleurisy. Intense tympany developed, and by its interference with diaphragmatic descent had undoubtedly much to do with the unfortunately fatal result. What the mechanism of this tympany could have been is difficult to state, unless possibly irritation of the splanchnics or paralysis of the pneumogastric nerve be presumed to have occurred. The abdominal symptoms in the second differed somewhat from those observed in the first case, in that the distension was apparently painless, whereas in the first case there was evident abdominal distress. It is, however, possible that interference with the proper nervous control of the bowel-walls may have played a part in the case at the Episcopal Hospital also.

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THERMIC FEVER, WITH AN UNUSUAL SEQUELA—MULTIPLE NEURITIS.

By John C. Heisler, M.D.

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This case is reported because of the interest attaching to its subsequent history. As is well known, the most common sequela of sunstroke is inflammation of the cerebral meninges, of greater or less degree, while multiple neuritis is so rare as not to be mentioned in this connection in such works as Pepper's "System of Medicine," "Wood's "Nervous Diseases and their Diagnosis," Ross' "Neurology," Roberts' "Practice," and Buzzard's "Monograph on Multiple Neuritis." Although, as just stated, the chief point of interest in the case relates to its course during convalescence, there were several noteworthy facts in connection with the attack, and, therefore, a brief account of its clinical course from the first is offered.

The patient, Miss S., a girl of 23, employed in a laundry, her work being in a room which was intensely hot, was seized on July 29, 1892, with severe headache, feverishness, anorexia, and a feeling of general weakness. It will be observed that the date referred to corresponds to the intensely hot period of last summer. This indisposition necessitated abandoning her work in the middle of the afternoon. She passed a restless night, and in the forenoon of the following day, about ten o'clock, became comatose. When I first saw her, at noon, there were complete unconsciousness, great heat of skin, contracted pupils, noisy, slightly accelerated and somewhat irregular respiration, feeble heart action, and muscular rigidity, the forearms being semi-flexed and in extreme pronation, and the arms adducted, this rigidity occasionally giving place to twitchings of short duration. The axillary temperature was 109° F. As soon as ice and water could be procured cold affusion was practiced, an ice-water enema administered, the body rubbed with ice, the head packed in cracked ice, and fifteen grains of antipyrine with fifteen minims of brandy injected subcutaneously. Under this treatment the temperature soon fell to 101°, when the application of cold was discontinued; but—and this was one of the interesting features of the case—so soon as the external cold was removed the temperature at once rose to 107°. Repeatedly were the cold applications resumed with the result of bringing down the temperature, and repeatedly would it again rise, until the patient's friends begged that she be left to die undisturbed by further efforts in her behalf. As the face and neck were now turgid, and as there was increasing tendency to convul-

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sive action, blood-letting was resorted to, sixteen ounces of blood being taken from the median-cephalic vein. This was followed by an amelioration of all the symptoms except the excessive temperature, which continued at such a dangerously high point as to necessitate the continuance of external cold until eight o'clock in the evening. Consciousness was not regained until the morning of the following day.

The only symptoms of the succeeding two or three days were irritability of the stomach, and constipation, with, of course, considerable weakness. The patient was at once put upon calomel, one-twelfth grain four times a day, the ice-bag was kept continuously applied to the head, and all disturbing influences strictly interdicted. On the third day a bedsore three inches in diameter made its appearance over the upper part of the sacrum. This was somewhat obstinate, but finally (after six weeks) yielded to protective, antiseptic, and stimulating treatment. I have not been able to find any references to bedsores of neuropathic origin—as this one obviously was—occurring after sunstroke, nor do they occur in multiple neuritis. For several weeks the temperature range was from 100° to 101.5° F., and a marked symptom during this time was intense pain in the calves of the legs, without any objective symptoms whatever, save absence of patellar "reflex" and evident deficiency, though not complete loss, of power. The patient complained, too, of weakness of the arms and fingers, there being inability to completely flex the fingers or to execute other than clumsy movements with the arms. As no thought of neuritis was entertained at this time examination for tenderness along nerve trunks was not made. Weakness of spinal muscles was discovered later on attempts to sit up in bed, after fever had entirely subsided and general bodily strength had been in a measure regained. Still later, on attempting to stand, there was found total inability to do so. It was not until two months after the attack that the patient was able to walk with the aid of but one cane. Since November she has been able to walk without canes, but her efforts at locomotion are clumsy, and her power untrustworthy.

When the loss of power was first discovered the case was thought to be one of myelitis, but subsequent examination disclosed marked tenderness over the principal nerve trunks of the extremities, with some thickening.

In the early part of December I sent the patient to the out-patient department of the University Hospital for treatment. Examination of the case at that time, notes of which were kindly furnished me by Dr. Evans, one of the physicians in charge, revealed the following condition:

Dynamometer, right side, twenty-seven; left, thirty-one. Sensa-

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tion delayed on both sides, but especially on the right. Knee-jerk increased. No marked wasting of muscles. Slight tenderness over median and sciatic nerves. In anterior tibial and peroneal muscles of both legs, AnClC > KClC. In posterior muscles of right leg, AnClC = KClC. The left posterior group showed quantitative decrease. No reaction of degeneration was found in the arm muscles.

I am at a loss to account for the increased knee-jerk noted at this examination, but would suggest the possibility of a relation between this increase and the rather large doses—one-twentieth grain thrice daily—of strychnia which the patient had for some time been taking. At the present time the knee-jerk is normal.

I have been able to find in literature accounts of but two cases similar to this one; these were reported by Dr. F. X. Dercum.[1] The first case, in which there were headache, dizziness, loss of power in the muscles of the extremities and face, with slight peripheral impairment of sensation, and pain and aching in the lower dorsal and lumbar regions, Dr. Dercum regarded as one of myelitis, while the second, in which, in addition to the foregoing symptoms, there were tenderness over the peripheral nerve trunks, vasomotor changes, and decided muscular degeneration, he looked upon as presenting both peripheral and spinal lesions.

It may be noted here that in the case which I report there was no involvement of the sphincters, nor was headache at any time a prominent symptom.

To summarize: The points of especial interest in connection with this case are, first, the occurrence of peripheral neuritis as a sequel; second, the long continuance of excessively high temperature without permanent damage to the central nerve system; third, the presence of what was evidently a neuropathic bedsore; and fourth, the absence of subsequent headache, as well as of morbid sensitiveness to heat; still further, it teaches the important practical lesson that the physician should not be too easily deterred in his efforts at reducing temperature by the apparent hopelessness of the case.

[1] University Medical Magazine, January, 1891.

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MEMORANDA.

A CASE OF DYSENTERY.

THE following case is interesting because of some rather unusual features: The age of the patient, the large number of stools during each day and the duration of the dysenteric symptoms.

The patient, during last spring, had an attack of double croupous pneumonia, from which he slowly recovered. Since then he has had three apoplectiform attacks. Two of these were very slight, and, like the third and most serious one, followed his attendance at a horse race, and the excitement consequent upon his driving a spirited horse to and from the race course.

On October 18 I was called to see Mr. L. and informed that on the preceding day he had had a "stroke of paralysis," that his left side had been paralyzed, and that he could not articulate so that he could be understood, and that in my absence another physician had been sent for, who had visited him and prescribed for him.

Subsequently this physician corroborated this statement as to the patient's condition when he saw him.

Upon reaching the home of Mr. L. I found him perfectly conscious, able to speak distinctly, and without loss of power or sensibility in any of his members, and with no deflection of the tongue.

I had been informed that during the night there had been ten or twelve evacuations of the bowels, and that after each stool his speech and power of movement improved, until he was as I found him.

Upon questioning him, it was learned that within the preceding three days the patient had eaten at least ten pounds of grapes.

During my visit there was another bowel movement, and upon examining the contents of the bed-pan I found the characteristic stool of dysentery; and with this passage the patient complained of the "bearing down."

A small dose of castor oil, with ten drops of laudanum, was ordered, and was to be followed by a pill composed of opium and capsicum, āā gr. ¼, and bismuth subnitrate, gr. ij, given at intervals of two hours, a combination much used in such cases by the late Dr. John F. Meigs. The diet was to be restricted to milk and lime water.

The next day when I reached the house the patient informed me that there had been at least fifty stools since my visit, and that they had been accompanied by great burning and bearing-down pains. Think-

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ing this an exaggeration, I directed that a record of the actual number be kept. For the next three weeks this was done, and the number varied from forty to sixty evacuations daily, and was more often over fifty than forty. The stools varied in size from a few drachms to six or eight ounces of liquid fecal matter mixed with blood and mucus, and of an exceedingly disagreeable odor, the nurse remarking that the patient must be "rotten inside."

As the patient resided in a supposedly malarial district, quinine (gr. xij daily) was added to his medical treatment, and for the relief of the abdominal pain sinapisms were applied.

The following day the same condition met me. The pill of opium, capsicum and bismuth was discontinued, and one of opium and ipecac substituted, and enemata of laudanum and starch water used, and the diet restricted to boiled milk, cracked ice being used to relieve the thirst.

This treatment was continued for two days without the slightest improvement. Then the patient was given tr. opii deod., gtt. x, and in an hour twenty grains of powd. ipecac, and in two hours another dose of twenty grains. And opium by suppository.

The ipecac on both occasions caused violent vomiting and great prostration, and gave no relief. This same evening another small dose of castor oil was given. On the next day there was no change in the man's condition.

Bismuth sub-nit., gr. xx, every two hours, was given; opium by suppository, a grain every four hours, and two high injections of cold water, a pint each time, the patient utterly refusing to allow any greater quantity to be used, on account of the pain caused by the injection. For two days this was continued, then the sub-carbonate of bismuth was used instead of the sub-nitrate.

The boiled milk was replaced by predigested milk, given in very small quantities at very frequent intervals. Still there was no cessation of the dysenteric symptoms. The bismuth was discontinued, and a pill of opium and nitrate of silver, āā gr. ¼, was given every three hours. No change followed its use. Then opium and acetate of lead were used.

Then chalk mixture with catechu, the diet in the meantime being cut down to absolutely nothing but beef juice and small doses of port wine and brandy.

After this state of affairs had lasted two weeks I requested Dr. Starr to see the case. During all of this time the general condition of the patient was fairly good.

The pulse was strong and rapid, and there had been no great elevation of temperature, the tongue alone showing the serious inroads

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that must have been made upon the strength, being dry and covered with brown encrustation, and the lips covered with sordes.

Upon the morning of Dr. Starr's visit the record showed that within the preceding twenty-four hours there had been over forty bowel movements. The stools were of a very dark-brown color, liquid, and of an exceedingly disagreeable odor, and mixed with a little mucus and occasionally a little blood.

The evacuations were always preceded and followed by the "bearing down."

After a thorough examination, including exploration of the rectum, the following treatment was adopted:

The diet was to consist of milk, predigested milk, beef juice, brandy and port wine.

The quinine was continued, a suppository containing ex. opii aq., gr. ss; plumbi sub-acetat, gr. j; pulv. ipecac, gr. ij, was to be given every four hours. Acidi sulph. aromatici, gtt. xv in water were given every four hours, and turpentine, gtt. v, every four hours, the hours being so arranged as not to conflict.

In addition, an emulsion of castor oil was ordered and given twice daily, in such proportion as to give f3iss of the oil to each dose.

This treatment was faithfully followed for one week, without the slightest improvement, and the patient's general condition began to suffer very decidedly from the continued drain.

When almost in despair, I remembered the advice which Dr. James H. Hutchinson often gave his residents at the Pennsylvania Hospital: "When in the treatment of any case, you have tried, without success, all or nearly all of the usual remedies suggested by empiricism, or by therapeutic reasoning, stop all treatment, think of the simplest 'old woman's' remedies of which you have ever heard, and try them." I stopped everything and ordered paregoric, f3j, every three hours; Tr. ferri chlor., gtt. x, were given in water four times a day, care being taken that food be not given immediately before or after the iron.

In two days the number of bowel movements was reduced to twenty per day, in four days to five, and at the end of a week I was able to discontinue the use of the iron.

This, too, with a very liberal increase in diet, whereas before this, each mouthful swallowed, whether of milk, or brandy, or ice cream, or beef juice, was followed by an evacuation of the bowels, accompanied by great tormina and tenesmus.

Since then the patient has made rapid progress toward recovery, and before the end of six weeks, upon the eighty-third anniversary of his birth, was allowed to get out of bed.

JOHN GILLESPIE, M.D.,
Physician to the Children's Hospital.

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UNDESCENDED TESTICLE—A CASE.

A SHORT time since, in an institution for the feeble-minded, a case was brought to my notice who had suffered a recurring prolapse of the rectum for several days. The boy was 13 years old, and subject to prolapse of the bowel upon becoming constipated, or when his bowels became very loose and any tenesmus was present.

On examining him I accidentally discovered a tumor in the left inguinal canal, which looked so like a hernia that I questioned at once in regard to his passages. The attendant could not be sure as to when his bowels moved last (the boy could not answer intelligently, or at least no reliance could be placed on his answers), and the only thing in the history we could be sure of was that he had not vomited, and that it (the tumor) had been noticed at least two days previously. He was a child who waited on himself at the closet, and was only seen nude at the bi-weekly bath.

The tumor possessed a consistency much too hard for hernia, and this, together with the absence of vomiting, led us to cast about for another diagnosis. Undescended testicle suggested itself, and on examining the corresponding side of the scrotum it was found empty. The characteristic pain, of course, we could not elicit from this case, owing to his mental deficiency.

It now seemed quite probable that an inflamed testicle retained in the inguinal canal was the case before us, and yet so much doubt existed as to make us decide upon at least an exploratory incision. This was made, and on opening the sac the testis with its epididymis was found, but so black and gangrenous as to make its recognition a matter of extreme difficulty. Upon lifting it out of the wound, a twist in the cord was discovered to be the cause of the condition.

The boy was a confirmed masturbater, and had probably, in his idiotic maneuvres, effected the twist himself.

The cord was pulled out until the line of demarcation came to view, the artery tied and the organ excised. The wound healed without the appearance of pus, notwithstanding the fact that his urine could not be kept from infecting the wound, nor his fingers from tearing the bandages off without restraint, which it was not thought proper to apply.

Now, the interesting part of the case to me is the manner in which the circulation in the gland was arrested, and I can find the history of no similar case, nor that cause given in text-books as one that is likely to call for excision of the gland retained in the inguinal canal.

Excision is sometimes called for when a gland so retained becomes the seat of inflammation following gonorrhea and the like, but this cause is, at least, very rare.

B. VAN SWERINGEN.
FT. WAYNE, IND.

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GENERAL PARALYSIS FOLLOWING MILD DIPHTHERIA.

THE following cases of paralysis, developing after mild cases of diphtheria, are of interest, since they strikingly demonstrate the fact that the liability to paralysis and the extent of the latter bear no relation to the gravity of the diphtheritic disease.

Two brothers, of 3 and 4 years respectively, with a history of having always been exceptionally healthy children, were suddenly taken sick on the evening of September 11. High fever, an apathetic condition and slight convulsive twitchings were the only symptoms noticeable. The last were attributed to the elevated temperature. The symptoms yielded promptly to the external application of cold and small doses of antipyrin, and on the following morning both children were found sitting up in bed playing with their toys. A thickened speech and some swelling of the neck, however, attracted my attention, and on inspection the throat was found to be inflamed and the tonsils dotted over with several well-defined white patches, suggestive rather of follicular tonsillitis than diphtheria. The anginose symptoms yielded to simple treatment, and within five days both children were discharged as practically well.

About twelve days later they both developed hoarseness, which the mother attributed to a simple sore throat; but soon swallowing became difficult, and was followed by regurgitation of food through the nose, and the voice became indistinct and finally lost. In the younger boy the muscles of the neck then became involved so that the head could not be supported; next the muscles of the back and abdomen were attacked, thus rendering an erect posture impossible; later, paralysis developed in the arms and legs, so that the child became perfectly helpless. Finally ptosis and strabismus developed, and the bladder and rectum became incontinent. Sensation was very imperfect in the arms, and almost completely lost in the legs. At no time were the cardiac and respiratory centres affected. This boy was sent to the Presbyterian Hospital for electrical treatment, and there he remained for five weeks under the care of W. R. Weiser, senior resident physician, who kindly furnished me the following report: "On admission the child was completely paralyzed in legs, arms, throat and tongue; food was regurgitated through the nostrils; internal strabismus was marked, the voice was completely lost and the bladder and rectum were incontinent. There was marked anesthesia over arms and legs. For many days after admission neither galvanic nor faradic currents elicited any muscular contractions. Finally, however, a slowly interrupted faradic current induced a slight response, which increased from day to day." At no time was there much tenderness over the nerve trunks.

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In addition to the faradism the child was kept on a milk diet, the muscles were subjected to massage, and strychnia was administered internally. Under this treatment improvement progressed to complete recovery.

In the other child the paralysis involved the muscles of the throat, tongue, legs and arms. In the throat, tongue and legs it was complete, but some movement was retained in the arms. Sensation was not appreciably lessened at any time in any part of the body. Speech was wholly lost and none but liquid diet could be taken. This patient made a complete recovery under perfect rest and carefully graduated doses of strychnia.

T. M. BALLIET, A.M., M.D.

DEPARTMENT NOTES.

PHYSIOLOGY.

(1) CONDUCTIVITY VS. IRRITABILITY. (2) ABERRANT EFFECTS OF MORPHINE. (3) THE ACTIONS OF PILOCARPINE ON THE PULSE AND BLOOD PRESSURE.

(1) *Conductivity vs. Irritability.*—Such an intimate relation has been observed to exist between conductivity and irritability of nerves that we find it stated in leading books on physiology that both are affected in the same way by the same circumstances, thus leading to the inference that they represent simply two phases of a single physiological property. But we have evidence to conclusively prove that they are entirely distinct and independent.

Since the publication of my memoir on the actions of strychnine in excitant and paralytic doses, (*Therapeutic Gazette*, March, April, May and June, 1892), in which I announced the fact that strychnine in paralytic doses destroyed the electrical excitability of the motor nerves without affecting conductivity, I have learned from communications and comments that there are many who believe that this differentiation of irritability and conductivity is a new fact in physiology. Such, however, is true only so far as strychnine is concerned.

Schiff long since pointed out (*Physiologie*, 1858–59) that nerves may conduct impressions from the centres, yet be inexcitable to direct

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stimulus. In a research on the union of the hypoglossal and pneumogastric nerves (*American Journal of Medical Sciences*, January, 1885), my results confirmed Schiff's discovery. Erb, Gluck, and Howell and Huber have noted the same conditions in regenerating nerves. Waller found that conductivity is sooner affected by fatigue than irritability. Moreover, a number of poisons are capable of abolishing excitability without destroying conductivity, such as coniine, CO_2, curare and boric acid. Recently, I have found that brucine and atropine in very large toxic doses exert the same action.

Such evidence renders it conclusive that conductivity and irritability are entirely distinct properties of nerve fibres.

(2) *Aberrant Effects of Morphine.*—The marked condition of wakefulness produced in certain persons by morphine in doses which would in most others have caused somnolence is well known, and there are instances on record which prove that in some people morphine produces pain. These departures from the typical effects of this extraordinary drug are but illustrations of others equally as interesting.

Time. Min. Sec.	Dose. Grammes.	Respirations per minute.	Remarks.
0.00	0.12		Infection, intravenous.
0.48		56	
1.00		120	
2.00		18	
3.00		42	
4.00		63	
5.00		150	
8.00		150	
15.00		210	
20.00		228	
30.00		184	
40.00		174	
50.00	0.3		
51.50			
52.50	4.8*	150	
58.00		75	
63.00			
64.00		42	Opisthotonos.
65.00			Respiration suddenly ceased.

* Injected in eight doses.

On the respiration rate morphine is believed always to act as a depressant, diminishing it more and more in proportion to the dose, and commonly causing death by paralysis of the respiratory centres. Its action, however, is not by any means always that of a respiratory depressant, although I have nowhere seen this fact stated. In experiments on dogs made several years ago, in connection with certain

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morphine antagonists, I was surprised to find in most cases that the respirations were primarily decidedly increased in number and depth; in fact, the action was that of a strong respiratory stimulant. In a dog weighing 8.5 kilos an injection into the vein of 0.1 gramme increased the rate from 30 to 66 within a few seconds. In another of 7 kilos weight, the injection of 0.18 gramme caused an increase from 38 to 78. In another of 15 kilos weight, after a dose of 0.3 gramme, the increase was from 24 to 132. In each of these the increase was transient, lasting for but a part of a minute, and soon followed by a rapid diminution to the slow, deep respirations of opium poisoning with which we are so familiar. This action as a respiratory stimulant is sometimes not only very marked, but equally as persistent, as is shown in the foregoing records, obtained from a dog weighing 10 kilos.

It will be observed that the first injection increased the rate from 57 to 120; this was followed within the next minute by a reduction to 18, and subsequently by an increase, until at the end of the twentieth minute the respirations had reached the enormous number of 228 per minute. The increase in frequency was attended by an increase in depth. After the twentieth minute the rate was gradually reduced and the effect of each subsequent injection was a further decline, although it was not until after the administration of enormous quantities that the respirations finally fell below the normal.

We have here illustrations of the rule that agents acting as depressants also act, if in small enough doses, or in cases of idiosyncrasy, primarily as excitants. The aberrant effects above alluded to simply represent the primary actions of morphine: in the first case, upon the cerebrum; in the second, upon the sensory cells in the nerve centres; and in the third, on the respiratory centres. The wakefulness caused in certain people is a manifestation of the primary action on the cerebrum. Owing to the idiosyncrasy of these individuals the primary action far supersedes the secondary, and doubtless enormous, if not fatal, doses would have to be employed to obtain narcotic effects. Where individuals experience pain instead of analgesia, the sensory nerve cells are excited instead of depressed. In connection with the respirations the same argument holds good. In the experiments above referred to, the primary and secondary actions were well marked, and in the one given in detail we have an analogous condition to where wakefulness is produced instead of sleep, or pain instead of analgesia. Owing to the idiosyncrasy of the animal in this last experiment, the primary action of the poison was so marked that enormous doses had to be employed to obtain the depressant action.

(3) *The Actions of Pilocarpine on the Pulse and Blood Pressure.*—The actions of pilocarpine on the circulations are not fully determined,

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but the chief point of difference of therapeutic interest is its influence on the rate of the heart's beat. Riegel (*Berliner klin. Woch.*, 1875, S. 86), Stumpf (*Deutsche Archiv f. klin. med.*, 1875, S. 255), Weber (*Centralbl. f. med. Wiss.*, 1876, S. 769), Pilicier (*Ibid.*, S. 428), Fronmüller (*Ibid.*, 1877, S. 128), Leyden (*Berliner klin. Woch.*, 1877, S. 404), and Kahler and Soyka (*Archiv. f. Exper. Path. u. Phar.*, VII, S. 435), all have found in observations on man or animals, in which either an infusion of jaborandi or the commercial pilocarpine was used, that the pulse-rate was increased. On the other hand Harnach and Meyer (*Archiv f. Exper. Path. u. Phar.*, XII, S. 374) state, as a result of their investigations on animals, that pure pilocarpine does not increase the pulse rate, consequently leading to the conclusion that this effect is due to some other substance in jaborandi and the commercial pilocarpine than pilocarpine.

From a study of the detailed results recorded in certain of the above investigations it has seemed to me apparent that the contradictory results obtained by Harnach and Meyer were not due, as they believed, to the freedom of their pilocarpine from contamination, but solely to the differences in the doses employed by them and others. Thus, in the experiments of Kayler and Soyka on dogs, from 5 to 10 cc. of an infusion of 10 to 150–200 parts of jaborandi were usually given as a dose. Such quantities caused a distinct but transient increase in the frequency of the heart's beat, which was accompanied by a similarly transient decrease of arterial pressure. Larger doses were followed by similar phenomena, but with the return of the pressure to the normal the pulse rate was slower. After larger doses the frequency of the pulse was decidedly decreased, the pulse curves were greatly increased in height, and the reduction of pressure was of longer duration. In these experiments, in which an increase in the pulse rate was noted, the quantities of pilocarpine represented in the individual doses were but fractions of a milligramme, while in the investigations of Harnach and Meyer the doses each amounted to several milligrammes, or many times greater than those employed by Kahler and Soyka. When the doses in the latters' experiments were about the same as in the formers' the results were similar. In order, however, to satisfactorily determine this point it seemed desirable to supplement the experiments of Harnach and Meyer by others in which very small doses of pure pilocarpine are used similar to the quantities represented in the injections of Kahler and Soyka. The results of such experiments clearly show that the reason why Harnach and Meyer never noted an increase in the pulse rate was due solely to the fact that the doses they employed were too large. The following brief records are sufficient to prove this. Merck's chemically-pure pilocarpine, free from jaborine, was used.

In Experiment 1 the dog weighed 8.72 kilos.; 0.001 gramme was

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intravenously injected. In twenty seconds the pulse was increased from 108 to 216 beats per minute, and within forty seconds had returned to the normal; the arterial pressure fell during twenty seconds from 108 mm. to 84 mm., and in forty seconds had returned to the normal.

A second injection of the same amount increased the pulse from 108 to 192 in the same interval, and reduced the pressure from 108 mm. to 961 mm.

A third injection, dose and interval as before, changed the pulse from 108 to 160, and the pressure from 108 mm. to 100 mm.

A fourth injection of 0.006 gramme was followed by a decrease in the pulse rate and a diminution in pressure.

It will be observed from these records that the effects of each subsequent injection on the pulse rate and pressure grow progressively less. The increase in the pulse rate following each dose was 108, 84 and 52 beats per minute, respectively; and the decrease in pressure 24, 14 and 8 mm., respectively. After the last dose, which was double as much as had been given in all of the three previous injections, both pulse and pressure were reduced. With each increment of dose the amount of increase of the pulse rate was less and less, and finally a decrease ensued instead of an increase.

In Experiment 2 the dog weighed 10 kilos. After the first injection of 0.0005 gramme the pulse rate was increased in twenty seconds from 142 to 177 beats per minute, and the pressure was diminished from 132 mm. to 94 mm.

A second injection increased the pulse rate from 140 to 156, and reduced the pressure from 128 mm. to 92 mm.

After a third injection the alterations were respectively 142 to 150, and from 126 mm. to 102 mm.

The fourth injection contained 0.003 gramme, or six times the dose in each of the previous ones. This did not alter the pulse rate, but lowered the pressure from 120 mm. to 102 mm.

The fifth injection, of the same amount, reduced the pulse from 142 to 130, and the pressure from 116 mm. to 90 mm.

The results of this experiment not only entirely corroborate those of the former but show that there is a dose in proportion to the body weight which is absolutely without effect on the pulse rate—in other words, we are just on the border line, the dose being too large to cause an increase and too small to induce a decrease. The first three injections were followed by an increase in each case of thirty-five, sixteen and eight beats per minute, respectively; while the fourth dose was without effect on the rate; finally, the fifth dose diminished it. In experiments in which a single large dose was given the pulse rate was invariably decreased, there never being observed an increase at any time.

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From this it is obvious that the pulse rate may be increased, not affected, or decreased, according to the size of the dose; small doses increase it, moderate doses are without certain or decided effect, and large doses reduce it.

In Experiment 3 the dog weighed 22.654 kilos. The detailed records are typical of the different phases of the actions of pilocarpine on the circulation and respiration:

Time. Min. Sec.	Dose. Grammes	Pulse. Per min.	Pressure. Mm.	Respira'n Per Min.	Remarks.
0.00	0.005	174	154	18	One-fourth of one per cent. solution of Merck's chemically pure pilocarpine injected into the external jugular vein.
.20					
.25		186	68	26	
1.00		180	132	26	
4.00		176	136	42	
8.00		174	132	72	
15.00		174	130	90	
.13	0.0075				
.32			86		
.50					
16.00		150	132	50	Respirations greatly increased in depth. Pupils dilated.
20.00		144	126	60	Pulse curves higher.
.16	0.012				
.32			102		
21.00					
.10		132	126	63	
23 00		114	124	60	Pulse curves still higher.
30.00		114	112	60	" " "
.10	0.012				No fall of pressure was caused by this injection.
.26					
.30		108	116	66	Salivation profuse.
32.00		108	124	66	
.23	0.0375				No fall of pressure occurred until 33.31, at which time the heart's action was suddenly and profoundly inhibited, being reduced from 108 to 42 beats per minute.
33.58					
34.00		23	100	66	Pulse curves very high.
35.00		42	74	48	Spasmodic twitchings. Respirations much deeper.
38.00		48	76	65	
.14	0.05				
39.20					
.30		43	84	69	No immediate fall of pressure was occasioned by this injection.
40.08					Tetanus.
.30		36	56	60	
43.00		30	36	26	
47.00					Respiration ceased. Heart continued beating for nearly two minutes after.

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The first injection, which contained 0.005 gramme, being a moderate dose for the weight of the animal, caused the pulse rate to be slightly increased in frequency, the normal being regained within eight minutes. This dose was almost large enough to be without power to increase the rate. Had it been a little larger, doubtless the opposite effect would have occurred. The second dose, which was a half larger, caused a decided decrease in the rate, which was accompanied with higher curves. Each successive dose was similarly followed by a reduction in the number of beats with a correspondingly increased height of the curves. It is of interest to note that there comes a period (see at the thirty-fourth minute) when the heart's action is profoundly inhibited.

There is a general relation between the frequency of the heart's beat and the height of the pulse curves. During the stage of increased pulse rate the curves are correspondingly small. During the diminution of the rate the curves are higher in proportion to the diminution, until very late in the poisoning, when the heart fails. There is also a relation between the pulse rate and arterial pressure. The tendency of the poison throughout its action is to decrease the pressure, and this is aided by the increase in the pulse rate during the first stage, and subsequently by the reduction in the rate. In other words, there are two factors involved in the decrease of pressure—cardiac and vaso-motor. Late in the poisoning the vaso-motor centres are completely paralyzed.

The action on the respirations was decided; both rate and depth were greatly increased.

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EDITORIAL.

THE RELATION OF EYE DISEASES TO NASAL CONDITIONS.

THE time is not far past—during the developmental period of specialism—when the treatment of ear diseases was associated with that of eye diseases. It was not long, however, before the total dissimilarity of the conditions divorced the union, and ophthalmology developed as a separate specialty, while the throat, nose and ear were recognized as more closely related. Until a comparatively recent date no literature taught the close interdependence of certain conjunctival and corneal diseases, as well as lachrymal troubles, upon nasal abnormalities. There now exists, however, an abundant record of this subject, and so firmly has the necessity for nasal treatment in certain eye diseases impressed itself upon the oculist that patients are constantly directed to seek relief for their nasal and pharyngeal condition while being treated for their ocular troubles. Indeed, the close relationship between the two organs has led one of the foremost oculists to associate nasal treatment with his special practice.

The presence of phlyctenular conjunctivitis or keratitis, which is also known as scrofulous or eczematous conjunctivitis or keratitis, is almost invariably associated with an irritative rhinitis and excoriations about the nares, and a tardy recovery is transformed into a rapid cure by appropriate treatment of the unhealthy membrane of the nose. The influence of nasal conditions upon the lachrymal apparatus is most extensive and pronounced. In the *Medical News*, February 6, 1885, Dr. Harrison Allen published his observations upon cases from the clinics of Dr. Norris and Dr. Oliver, and found that in twenty cases of lachrymal obstruction there existed coincident chronic nasal catarrh; he further adds, however, that the proportion cannot be presumed to be constant, since in his own practice the association is much less frequent. He holds that obstruction occurs where there exists (1) submucous infiltration or atrophies from chronic nasal catarrh, or (2) where there is necrosis or ostitis. In a later paper (Transactions Philadelphia County Medical Society, p. 52, 1890) the same writer cites additional cases to show how displacement of the middle turbinate bone or a hyperplasia of the mucous membrane may cause pressure and congestion terminating in lachrymal obstruction.

There is a close etiological relation between measles, and other

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exanthemata, and lachrymal stenoses, which is explained by the inflammation of the naso-pharyngeal mucous membrane, and it is in this class of obstructive cases that abscesses are most frequently met. In a paper read by Dr. de Schweinitz before the Philadelphia County Medical Society (Transactions, p. 173, 1892), he directs attention to a class of cases in which there is obstruction to the drainage system of the eye and which are most successfully treated with the aid of the rhinologist. The conditions justify a division into those cases where:

(1) The lachrymo-nasal duct is obstructed by a turgescence of the entire mucous membrane and not by a local stricture.

(2) A stricture consequent upon a cicatricial condition following a chronic nasal catarrh, causing retention and suppuration from retained muco-organisms.

(3) Obstruction due to atrophic rhinitis causing not a stricture, but stenosis from contraction of the entire lumen.

(4) Periodic epiphora due to acute obstruction from pressure of a hypertrophy of the mucous membrane covering a turbinate, *e. g.*, in damp weather.

(5) Neoplasms pressing against the lachrymo-nasal duct, as in syphilis.

(6) Local obstruction at the nasal orifice of the duct due to a valve-like flap of membrane, local ulcer or a cicatrix from injudicious application of cauterizants.

(8) Cases due to pressure from asymmetry of the face, or local conditions obstructing the canaliculus, no matter what the cause, the character must be recognized and must be removed before this annoying condition can be successfully combatted.

While, therefore, a causal relation unquestionably exists between certain ocular and nasal disorders, it must not be inferred that they are inseparably associated.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

TUBERCULAR PERICARDITIS.

OSLER (*American Journal of the Medical Sciences*, January, 1893) has observed eighteen cases of the above disease, and makes the following remarks:

Etiology.—Tubercular pericarditis is not limited to any age. Males seem to be more liable than females. It is due in the majority of instances to infection from mediastinal lymph glands; the disease may be confined to these glands and to the pericardium. A second mode of extension is from the pleura or from the lung. The pericardium may be involved with the pleura in a general tuberculosis of the serous membranes.

Morbid Anatomy.—There are two groups of cases; those with adhesions between the two layers, usually with great thickening, and those with recent exudation, fibrinous, sero-fibrinous, hemorrhagic or purulent. Cases with adhesions are most numerous.

Clinical History.—There are four groups of cases: (1) Latent tuberculous pericarditis. The disease is discovered accidentally in cases where patients have died of other lesions. (2) Cases with symptoms of cardiac insufficiency following the dilatation and hypertrophy consequent upon chronic adhesive pericarditis. The clinical features are those of cardiac dropsy. The diagnosis is always uncertain. (3) Acute tuberculosis. The sympt oms are those either of a general tuberculosis or with cerebro-spinal manifestations. (4) Cases with symptoms of acute pericarditis.

Diagnosis is always extremely uncertain. In the large group of cases the difficulties are those which pertain to the diagnosis of adherent pericardium, increased by the symptoms of cardiac dropsy, which are usually present. In children without a history of repeated attacks of rheumatism, the bulging pericardium, systolic retraction of the apex, the fixation of the upper limit of cardial dulness, and the diastolic rebound, speak for adherent pericarditis; and if in a case of this sort there is no history of rheumatism, and if there are indications of tuberculosis elsewhere, a probable diagnosis may be made. In cases which begin as acute pericarditis, unless there are evidences of tuberculosis elsewhere, a diagnosis can rarely be made. If paracentesis be performed, and bloody exudate discovered, it speaks for tuberculosis. The clinical features offer no criteria.

Treatment.—It is not improbable that the disease may recover entirely. In an acute case the indications are to limit the intensity of the inflammation, and to prevent the evil consequences of a large amount of fluid in the sac. There is no drug which will limit the inflammation. Ice to the precordia is much preferable to blisters. Paracentesis must be performed when the effusion is giving rise to trouble.

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Weil's Disease.

Fiedler (*Deutsches Archiv für klinische Medicin*, Vol. L, 1892), basing his opinion upon thirty-one cases of the above disease observed by himself, and upon a study of the literature of the subject, comes to the following conclusions:

(1) Weil's disease is an acute infectious disease.

(2) It is probably (etiologically, symptomatically and anatomically), identical with the bilious typhoid fever first described by Griesinger in 1852, and later by Kartulis and Diamantopulos, a disease which has no relation to relapsing fever.

(3) It does not behave as a mere collection of symptoms, but as a well-characterized, specific disease. It is sharply differentiated from typhoid fever, septicemia and catarrhal jaundice. It is a disease *sui generis*.

(4) The disease-producing agent, chemical substance or micro-organism, is yet unknown. It is to be searched for in putrifying organic substances (Laveran's organism).

(5) The disease affects especially males of middle adult life. It is very rare in females and children. It is most frequent in the hot months.

(6) It begins quickly, without prodromes, mostly with chill and high fever, headache, congestion of the brain, severe general and gastric symptoms, with much thirst. Very quickly, mostly on the second day, severe muscular pains begin, most common in the calf, which last a long time, often for weeks.

(7) On the third to the seventh day jaundice appears, with swelling and tenderness of the liver.

(8) The fever has a typical course, lasting usually eight to twelve days, and ending by lysis. In about two-thirds of the cases a second rise of temperature occurs five to eight days after the fever first disappeared. This attack is usually less severe than the first.

(9) The pulse in the beginning is frequent; in the height of the jaundice subnormal, seldom intermittent, frequently dicrotic.

(10) Nephritis (albuminuria) is almost constantly observed; the amount of urine in the beginning is decreased, and contains bile coloring matter for a long while.

(11) The spleen is usually increased in size, especially in the beginning of the disease, and the splenic tumor can sometimes be palpated.

(12) Herpes and erythema usually appear.

(13) Epistaxis is very frequently observed, and sometimes hemorrhages from other mucous membranes. In severe cases there may be subcutaneous and submucous hemorrhages.

(14) Catarrh of the air passages is seldom observed. Pneumonia and pleurisy occurred but once in his series.

(15) The disease usually terminates in recovery in the German districts. The convalescence is protracted.

Tetany in Children.

Loos (*Deutsches Archiv für klinische Medicin*, Vol. L) concludes, from the study of seventy-four cases of tetany in one year, that laryngismus stridulus is the most important symptom of tetany in childhood. The article is one of unusual interest, and the reader is referred to the original article for the details. His conclusions are as follows:

(1) Tetany is a frequent disease of early childhood, and has well-recognized symptoms.

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(2) It begins relatively seldom with spontaneous tonic contractures of the extremities.

(3) It presence is proven by the diagnostic sign of spasm of the larynx.

(4) It is not definitely settled whether spasm of the larynx alone is sufficient to establish a diagnosis of tetany.

(5) The symptoms of the disease are explained by the unusual excitability of the peripheral nerves and muscles.

(6) This excitability is caused by different irritants.

(7) The reason for this excitability is not well known.

(8) The disease is more frequent in certain months of the year (spring).

(9) Tetany has no causal relation to rachitis.

Intestinal Hemorrhage in Typhoid Fever.

Kraft (*Deutsches Archiv für klinische Medicin*, Vol. L, 1892) reports his observations of intestinal hemorrhage, at Eichhorst's Clinic, in Zurich, in 991 cases of typhoid fever, covering a period of seven years. Forty-two of the cases, or 4.24 per cent., had intestinal hemorrhage. The sexes were equally divided. The greater number occurred at ages between 20 and 30 years. Eleven, or 26.2 per cent., of the forty-two cases died. In seven cases, or .71 per cent. of the whole number of cases of typhoid fever, the hemorrhage was the direct cause of death. In thirteen of the cases there was a single hemorrhage. In twenty-nine cases more than one hemorrhage. The bleeding was copious in twenty cases, and large in twenty-two cases. The most copious bleeding took place in men. The amount of blood lost varied between five ounces and one hundred ounces. The bleeding appeared as follows: In the first week, no cases; second week, ten cases; third week, twenty-four cases; fourth week four cases. In six of the fatal cases death took place within forty-eight hours after the bleeding. In the other five fatal cases death occurred between the fifth and eleventh day after the bleeding. Symptoms were present in twenty-one of the forty-two cases. These comprised all the cases where the hemorrhage was the cause of death, and fifteen of the twenty cases with copious bleeding.

The symptoms were as follows:

Blood in the stools	41	of the 42 cases.
Anemia	14	" "
Fall of temperature	12	" "
Accelerations of the pulse	12	" "
Collapse	10	" "
Insensibility	5	" "
Delirium	4	" "

The treatment followed was ice to the abdomen, cold drinks, ice pills, sesquichloride of iron, and ergotin, the latter given subcutaneously. Stimulants were used where collapse was imminent; but a degree of collapse is, perhaps, a desirable condition. Only ten of the cases which bled had been bathed. In all the cases which died the spleen was enlarged. There was swelling of Peyer's patches and the solitary follicles; erosion of the ulceration in the bowel and bloody discoloration of the mucous membrane.

Etiology and Pathology of Pleurisy.

Prinz Ludwig Ferdinand (*Deutsches Archiv für klinische Medicin*, Vol. L, 1892) reports twenty-three cases of pleurisy with effusion. A bacteriolog-

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ical examination of the exudate was made in all the cases. The nature of the exudate in the cases was as follows:

Serous.....	9 cases.....	1 death.
Sero-purulent.....	1 "	
Purulent.....	12 "	5 "
Sanguino-purulent.....	1 "	

Of the nine cases of serous exudate, two were caused by pneumococci, two by staphylococcus, and five were free from bacteria. Of these latter, however, four were tuberculous. The sero-purulent exudate contained a diplococcus. Of the twelve cases of empyema, two were caused by diplococci; five by streptococci (two deaths); two by tubercle bacilli (both died); two by diplococci and streptococci (one death); one by staphylococci and streptococci. Spontaneous absorption of the exudate took place in five cases. Aspiration alone was sufficient in three cases. Resection of a rib was practiced in ten cases with a mortality of 20 per cent. He concludes: (1) The greater number of serous exudates are free from bacteria. (2) The greater number of those free from bacteria are tuberculous. (3) Some serous exudates remain so in spite of the presence of pus-producing bacteria. (4) The greater number of empyemas are caused by streptococcus pyogenes, but other bacteria may also be the causative factors. (5) The infection of the pleura follows, in most cases, a lesion of the lung tissue; nevertheless, an exudate of toxic or mechanical nature must be recognized. The prognosis of the cases is good with the metapneumonic, primary staphylococci exudate, the primary streptococci, and bloody empyemas, in the order named.

A bad prognosis must be given in the severe cases of tuberculous and septic cases. He has not seen especially good results follow aspiration drainage. All streptococci exudates should be treated by resection of the ribs. Diplococcus empyema should also be treated by resection of the ribs. Where there is a serous exudate, a bacteriological examination should be made of the fluid; the treatment by aspiration, or radical operation, must then depend upon other indications in the case.

Bacteriological Examination of Cholera Morbus and Asiatic Cholera.

Kirchner (*Berliner klinische Wochenschrift*, October 24, 1892) reports the bacteriological examination of sixteen cases of cholera morbus and five cases of Asiatic cholera. Three of each group of cases died. In all of the five cases of true cholera he found almost pure cultures of the cholera vibriones. In one case of true cholera which died in the typhoid stage on the tenth day, cholera vibriones were discovered early in the case in almost pure culture in the stool, but at the autopsy only the bacillus coli communis was found. He believes this case to point a manner of cure when death does not occur rapidly. The comma bacillus is killed by the harmless microbes, and thus the case goes on to recovery. In another case, which died at the height of the disease, cholera vibriones were found in pure culture in the contents of the ilium. The two cases which recovered were affected only with diarrhea, but cholera microbes were found in the stools. In no other way could a diagnosis have been made. In the sixteen cases of cholera morbus the cholera microbes were entirely absent. Bacillus coli communis was unexceptionally present, however. He believes that the opium treatment of cholera is entirely wrong, and that it is nonsense to use subcutaneous injections of salt water to restore the loss of liquids sustained by those sick with cholera. He advises high enemata of chloroform water or peroxide of hydrogen in 10 per cent. solutions.

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The Cause of Leucoplakia Buccalis.

Erb (*Münchener medicinische Wochenschrift*, October 18, 1892) examined several thousand private cases with the view of discovering this lesion. He has collected 240 cases. Some of these cases were not syphilitic; careful inquiry failed entirely to establish such a history. It appears much less frequently in men than in women, only two of the cases being females. Both were syphilitic. He divides the cases into four grades, based upon the severity of the lesion. In 154 of the cases the angle of the lips was alone involved; twenty-eight cases the angle of lips and cheek; fifteen cases angle of lips and tongue; in nine cases the angle of lips and tongue; the cheek alone in twelve cases; the tongue alone in nine cases; the cheek and tongue in ten cases; the lips alone in three cases. Of the 240 cases 80 per cent. had syphilitic infection; 20 per cent. were free from infection. The severe grades of the disease were about as frequent in the non-syphilitic as in the syphilitic cases. Besides syphilis as a cause, tobacco smoking is the only other etiological factor discovered. Of 148 cases about 70 per cent. were smokers; 100 of these cases had syphilis, and 64 per cent. of these were smokers; forty-eight of them were not infected, and 77 per cent. were smokers of tobacco. Of the thirty-seven non-infected smokers 75 per cent. were hard smokers, while of the sixty-four infected cases which smoked only seven used tobacco to excess; only eleven of these cases neither smoked nor had syphilis. He concludes:

(1) That either syphilis alone, or smoking alone, may cause leucoplakia, and one about as frequently as the other.

(2) That in a great number of the cases both causes can be found.

(3) That the disease seldom appears without one of the two causes.

(4) That smoking alone is a cause only when it has been carried to excess.

(5) That in those affected by syphilis a very much smaller amount of smoking suffices to affect the mucous membrane.

Dentition Fever and Its Treatment.

Müller (*Correspondenz-Blatt*, October 15, 1892) says that posterity will look with wonder upon the difference of opinion now existing whether there is really a fever depending upon dentition alone. He believes, and bases his belief upon many observations, that certain cases of ephemeral fever occur in children where the most scientific examination fails to show any lesion except eruptive teeth, and the fever rapidly disappears upon lancing the gums. He advises the following manner of performing gum lancing. An assistant fixes the shoulders and legs of the child, while a second fixes the head. The index finger of the left hand is pushed between the jaws, and the tongue pushed somewhat aside. Then with a scalpel laid flat on the tooth he cuts off the little cap surmounting the point of the tooth (this can be easily discovered by the paler character of the gum in this position), or he makes parallel or cross cuts over the top of the tooth, thus excising a small portion of the gum. If the scarification is done in this manner the point of the tooth will remain free, and a scar will not form over it. The mother is directed to wash the scarified surface several times daily with a soft cloth wet in carbolic acid solution, to prevent infection and prevent the healing of the cut. The amount of blood lost is insignificant. This little operation will always relieve the child when the diagnosis is correct. It is not to be done, however, unless the physician is certain that no other cause for the fever exists.

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SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

THE TREATMENT OF RECURRING DISLOCATIONS OF THE SHOULDER JOINT.

RICHARD (*La Semaine Médical*, November 2, 1892) says the present methods of treating recurrent dislocations of the shoulder joint are defective. Both resection of a part of the capsule and of the head of the bone give fairly good results, but they do not allow complete restoration of the movements of the joint. In order to obviate this defect he has devised the following operation: The deltoid muscle is separated from the clavicular and acromial attachments by incision and turned backward as a thick flap, and an assistant retracts the coraco-brachialis muscle; by this means the attachment of the subscapularis to the humerus and the front of the capsule of the joint is laid bare. The upper and lower borders of this muscle are then forced from their attachments to the capsule. The arm being rotated inward, the operator now passes three strong silk sutures through the thickness of the capsule in front of the joint above and below; they are passed through the substance of the subscapularis muscle. The sutures are passed in a vertical direction, and placed about two centimeters from one another. The ends of the sutures are tied, and by this means the anterior wall of the capsule is made thick and rigid. The cut surfaces of the deltoid are approximated with sutures, and the superficial parts then sewn up. The nerve supply of the deltoid is not involved in the operation, hence no paralysis follows. The author has performed the operation twice, and in each case with good results.

THE STERILIZATION OF IODOFORM-GLYCERINE EMULSION.

STUBENRAUCH (*Centralblatt für Chirurgie*, December 10, 1892) says that the iodoform-oil is of more value to the average physician than the iodoform-glycerine mixture, because of the ease with which it can be prepared and sterilized. The sterilization of the latter, however, may be done as follows: First the glycerine should be heated by itself, and after it has been allowed to cool the proper amount of iodoform to be added. The advantages of this method are that the iodoform is not decomposed by the heat.

According to Schimmelbusch bacteria multiply with great difficulty when glycerine is used as a culture medium, therefore the iodoform glycerine mixture prepared with heat. Krause adds a little carbolic acid to the mixture, and thus renders it antiseptic.

THE ETHER TREATMENT OF INCARCERATED HERNIA.

ETTINGER (*Correspondenzblatt für Schweizer Aerzte*, 1892) reports three cases of incarcerated hernia treated by the Finkelstein method. At intervals of ten minutes a teaspoonful of sulphuric ether is poured over the tumor, and especially over the ring. The skin in the neighborhood should be covered with oil or vaseline to prevent any irritation from the ether. In the first case the reduction

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was effected in six hours after the continuous application of the ether; in the second case five hours were required; and in the third four and a half. Finkelstein reports cures in ninety-two cases.

The Cause of Valve at the Neck of the Bladder.

Opert (*Archiv für klinische Chirurgie*, Bd. 44) states the presence of a valve at the neck of the bladder without being associated with diseases of the prostate and bladder, is not uncommon. Mercier assumed that the condition existed only in old people, and operated with the best results in over 300 cases.

Von Dittel denies the statement that it is not dependent upon prostatic hypertrophy, but believes that it is due to a spasmodic contraction of the prostatic ring or internal vesical sphincter.

Socin claims that the causes may be either hypertrophy of the bladder as a result of stricture of the urethra, or tumors of the bladder, etc., and as a result of the hyperplasia, a bundle of transverse muscle fibres is raised up, and possibly proves a hindrance to perfect micturition.

Eigenbrodt reports the case of a man 24 years of age who, since boyhood, had suffered from difficult urination, so much so that at times the urine could only be voided by great straining. Examination of the urethra with the ordinary catheter was impossible, as only the smallest soft instrument could be made to enter the bladder. The first examination of the urethra was followed by complete retention, and all ordinary measures to relieve the same proved fruitless.

As a last resort the urethra was opened in the perineum, a sound was easily passed until it reached the neck of the bladder, when further attempts at introduction were resisted. A small sound with a sharp curve was next tried, and after considerable manipulation it entered the bladder; a catheter was then passed along this sound as a guide and allowed to remain in the wound. Two days later the patient died, and at the post-mortem the following conditions were found: The bladder was greatly dilated and the contained urine was purulent. The urethral orifice was covered by a transverse, half-moon shape fold of mucous membrane. This fold consisted chiefly of mucous membrane; the base being somewhat thicker, contained muscular fibres, probably a part of the sphincter muscle. The prostate was normal.

Report of a Case of Cystic Tumor of the Brain; Operation.

Striglitz (*Medical Record*, January 28, 1893) reports the case of a female, aged 25, who previous to her marriage had always been well; there was no hereditary taint of any kind, and no history of traumatism or convulsions prior to her present trouble.

In October the patient, while quietly talking to her husband, suddenly felt twitchings in the thumb and fore-finger of the right hand; the convulsive twitchings spread rapidly, extending up to the shoulder and face, and finally, within a space of a few minutes, to a general seizure, with loss of consciousness, cyanosis, frothing at the mouth, and tonic and clonic convulsions. An attack similar to the first one occurred seven weeks later, followed by a number of others. Suspicion of a localized cerebral lesion was aroused, although the patient offered absolutely no further symptoms; there was no nausea, giddiness, nor choked disk. She was put on the bromides, with the result that the convulsions were partially controlled. There was no specific history, but she was placed on antisyphilitic treatment with-

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out result. The deep reflexes were increased and more marked on the right than on the left side.

A tumor situated in the left anterior cerebral convolution was diagnosed. A lateral opening in the skull having been made, the dura was seen to bulge out slightly into it. An area on the dura about the size of a half dollar showed a diffused yellowish tinge, different from the color of the adjacent dura. The application of the poles of a small battery to the unopened dura promptly determined the centre for the movements of the hand and fingers, and the point corresponded with the discolored area. When the dura was opened the cortex of the brain showed no apparent change. A vertical incision into its substance was followed by a gush of yellowish serous fluid, none of which, unfortunately, was saved. The walls of the cyst were found to be perfectly smooth. The day following the operation the patient had lost all power to use her right thumb and forefinger. This symptom gradually improved. A few days later the patient had a slight convulsion of the right hand, arm and face. The scalp wound was again opened and adhesions found between the flap of skin and the dura. Probing revealed no recurrence of fluid in the cyst. The patient was kept on from fifteen to thirty grains of bromide of potassium per day since the operation. Partial twiching still recurs, and the author thinks probably that a glioma is at the bottom of the patient's trouble.

The Treatment of the So-called Impassable Stricture of the Urethra.

Browne (*British Medical Journal*, November 26, 1892) says that the operations which consist in opening the perineum, in order to search for the orifice of the stricture, are unnecessary, because if an instrument can be passed by looking, it can be passed by feeling; therefore, the instrument may just as well be passed through the penis, and directed through the stricture by the sense of touch, and the patient spared all risks of a perineal incision. The risks are real ones, as there is always the possibility of hemorrhage, and such wounds do not always heal.

In all cases of urethral stricture, whether urine issues or does not issue from the external meatus during an act of micturition, a surgeon with skill and patience should be able to pass an instrument through that stricture and into the b ladder It may be also asserted that when an instrument has once been passed into the bladder it may at once be withdrawn and replaced by one of larger size All strictures may in this way be dilated up to No. 6 or 7 English, and when once so dilated a Civiale's urethrotome can be introduced and the stricture cut so as to allow Nos. 15, 16 or 17 to be passed into the bladder.

The night before the operation some aperient medicine should be administered, and an hour or two before the operation the patient should have a hot sitz bath, and an enema of warm water. He should be directed not to pass any water for at least an hour before the appointed time. The patient must be thoroughly anesthetized, in order to abolish all urethral reflexes.

The exact distance of the stricture from the meatus is first ascertained. An attempt is now made to pass the smallest of steel sounds through the stricture, using, however, no force. After a short time the operator will find that the sound will be firmly grasped by the stricture, and finally, after a little patience, pass on into the bladder. This sound may be withdrawn and the next size introduced. After a No. 6 or 7 English has been passed the urethrotome may be employed. The floor of the urethra should be incised for at least an inch. After the instrument is withdrawn full-sized steel sounds should be passed.

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The author in conclusion lays great stress upon the importance of not being in a hurry to pass small instruments into the bladder.

Cranial Operations for Epilepsy.

Frænkel (*Wiener klinische Wochenschrift*, No. 50, 1892) says that while in general the results of surgical intervention in cases of traumatic epilepsy are better than formerly, they are, nevertheless, not what they are often thought to be, nor what are to be desired. He illustrates by referring to Horsley's statistics, and also those of Lucas-Championniére, who had ten cases, not one of which was followed by permanent cure. In searching for the causes of these recurrences he suggests as one the incompleteness of extirpation of the affected motor centres. He operated on six dogs, and in two of them marked symptoms of cortical epilepsy followed, and he suggests as an explanation that the attachment of the scar at the seat of operation and its subsequent contraction act as an irritant to the surrounding cortical substance, and thus serve to stimulate the recurrence of the epileptiform symptoms.

An Operation for Rare Cystic Growth of the Pancreas.

Hersche (*Wiener klinische Wochenschrift*, December 22, 1892) gives the history of a case of rare cystic tumor of the pancreas on which he operated successfully. The patient was a woman aged 32 years. The disease was of five years' duration, and the growth had nearly attained the size of a man's head. A heavy feeling in the abdomen and loss of flesh were the only symptoms complained of. There was no jaundice, no nausea from the ingestion of fatty food, and the excretions were all normal. The tumor was situated principally below and to the left of the umbilicus. An ovarian cyst was diagnosed. A median incision having exposed the tumor, across its upper border was seen the transverse colon, and at its lower the small intestines. It appeared to spring from the tail of the pancreas, and was so intimately adherent as to prevent enucleation. It was tapped with a large trocar, and two liters of chocolate-colored fluid drawn off. The cavity having been washed out with weak salicylate solution, the cyst wall was sewed to the peritoneum, and the cavity tamponed with iodoform gauze. The patient recovered, and the sinus eventually closed. The article concludes with a list of thirty-five other cases.

The Treatment of Gonorrhea with Ichthyol.

Jadassohn (*Deutsche medicinische Wochenschrift*, 1892, Nos. 38 and 39) gives the results of his treatment of 106 cases of gonorrhea with ichthyol. They were of both sexes. In the male cases examinations were made twice a week to determine the presence of the gonococcus, the secretion examined being obtained from the deep portion of the urethra. In the female cases the cervix uteri and urethra were both examined. The ichthyol was used in a 1 to 5 per cent. solution in the anterior portion of the urethra, and 1 to 10 per cent. in the posterior portion of the male urethra and the cervical canal in females. A 1 per cent. solution produces a burning sensation in the anterior urethra, but tolerance is soon established. A 1 per cent. solution has a marked anti-gonorrheal action, the gonococci disappearing rapidly. In a certain number of the cases there was a return of the trouble, but the ichthyol rapidly changes the secretion from a purulent to a watery one. The use of ichthyol is strongly recommended as one of the best means of treating gonorrhea.

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The Treatment of Scoliosis by the Method of Sayre.

Renvier (*Bulletin et Memoires de la Société de Chirurgie*, 1892, p. 679) exhibited a patient, aged 16½ years, whom he had cured of scoliosis by the application of six plaster jackets applied during a period of two years. In the dorsal and lumbar regions the vertebral column described a marked S-shaped curve, and the right shoulder was much elevated and prominent. He stated that in another case which had refused to wear the plaster jacket he had been unable to get such satisfactory results.

In the same journal, p. 706, Anger describes and illustrates an enormous molluscum weighing over twenty-five pounds, which he removed from a man aged 52 years.

Injuries of the Head.

Phelps, in the *New York Medical Journal* of January 14, 1893, gives the first of a series of three papers on injuries to the head. The second paper is in the issue of January 21. The detailed histories of 124 cases are given, and 58 necropsies. One hundred and one were cases of fracture, 70 being of the base and 31 of the vertex. Of the 58 necropsies, 48 showed evidences of laceration and hemorrhage, etc., and 10 evidences of contusion, etc. Of the 58 cases on which necropsies were held, 31 showed evidences of *contre-coup* alone, 5 of direct violence alone, 19 of direct violence and *contre-coup* and 3 unknown. Nearly 60 per cent. of the injuries involved fracture of the base; in fact, fractures of the skull which do not begin at the vertex are exceptional. That the fissure extends from vertex to base, and not vice-versa, is proved by the evidence of superficial injury and by the narrowing of the fissure as it passes downward. The complications of fractures are hemorrhages, thromboses, lacerations, contusions and paralyses. Their derivations are meningitis, abscess and atrophy. If epidural hemorrhage ever occurs without fracture, the author has never seen it in necropsies, nor had reason to suspect it in recovery cases. Epidural hemorrhage is the most characteristic complication of fracture. It usually proceeds from the osseous or smaller meningeal vessels, or when in larger quantity from the larger meningeal vessels, notably the middle meningeal artery. Subarachnoid or cortical hemorrhage is ordinarily derived from laceration of the cortical substance; a moderate amount of cortical hemorrhage from rupture of the vessels of the pia is also one of the results of meningeal contusion. Subdural hemorrhage depends most frequently upon rupture of the arachnoid and escape of the blood from the meshes of the pia mater into the arachnoid cavity. Cortical hemorrhage is the one most frequently encountered. The majority of lacerations reach the surface of the cortex, and superficial hemorrhage results.

Neomiction after Cystotomy.

Diday, in the *Lyon Medical*, December 11 and 18, 1892, discusses the mechanism and function of micturition after the operation of supra-pubic cystotomy has been performed for prostatic hypertrophy. This well-known surgeon was himself operated on a little over a year ago with excellent results. In operating, three things are desired to be effected:

(1) To eliminate the urgency and frequency of urination.

(2) To provide a means of satisfactorily emptying the bladder promptly and without irritating the organs.

(3) To empty the bladder completely.

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To accomplish these an opening above the pubes should be maintained; the urine should be evacuated through it by a catheter, and the bladder should be washed out. Retraction of the opening is to be counteracted by laminaria tents, the ingenious dilator of Langlebert, and the use of cones of ivory.

Two months after the operation urine began to flow by the urethra. Five months later the tendency of the suprapubic opening to close had ceased, and special dilatation was unnecessary. The ordinary gum-elastic catheter was found to be preferable to the metallic one, on account of the eye in the latter causing bleeding. When introducing the catheter, touching the walls of the bladder is to be avoided, as all the urine can be emptied without doing so, owing to the re-establishment of the contractility of the bladder walls. In drawing off the urine stop introducing the catheter as soon as the urine flows freely. When it ceases to flow do not introduce the catheter any further, but promptly remove it. Introducing it further will only cause persistent pain, and not allow the escape of a single drop more of urine. In washing out of the bladder never allow its walls to come into contact with the catheter. To do this withdraw the latter two centimeters before the urine ceases to flow, and begin the injection. Avoid distending the bladder in the slightest degree. When it becomes possible to use the natural urethra, it may be utilized occasionally to give immediate relief to the desire to urinate, but as some urine is always left the suprapubic urethra should be generally used.

The Point of Election for the Injection of Iodoform in Tuberculous Hip Disease.

Büngner, in the *Centralblatt für Chirurgie*, December 24, 1892, describes his method of using iodoform in tuberculous disease of the hip. He says: "It can no longer be contested that iodoform has a distinct anti-tubercular action, not only in cold abscesses but also in tuberculosis of the joints. Instead of following the method of Krause and making the puncture for the injection above the greater trochanter, he advises the method of Küster. The spot where the femoral artery passes over the brim of the pelvis is determined, and a line drawn from it to the apex of the greater trochanter; where this line crosses the sartorius muscle at its inner border is the point where the trochar is to be introduced. The joint at this point is not only comparatively superficial, but the capsule also is thin, and there is an overlying bursa, which, once in ten times, communicates with the joint cavity. A comparative test of the two methods of Krause and Küster on dead bodies gave for the former nineteen successes and six failures, for the latter twenty-five successes, the fluid being well distributed in the joint, and comparatively little around the outside. A Pravaz syringe of ten-grams capacity, with a needle five to seven centimeters long, was used, five to ten grams of a 20-per-cent. mixture with glycerine being injected and repeated in from one to four weeks.

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THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

SALOPHEN.

This drug occurs as a white crystalline powder, without odor or taste. Chemically, it represents equal parts of salicylic acid and phenol.

The *Therapeutische Monatshefte* for January, 1893, publishes a report, by EDMUND KOCH, on the action of salophen. The drug was used in forty cases, seven of which were acute articular and muscular rheumatism; eleven, chronic articular and muscular rheumatism and arthritis deformans; two fever cases, and the others various forms of neuralgia. The daily dose was forty-five to seventy-five grains.

In the acute cases the drug acted as promptly in relieving the pain, fever and swelling as salicylate of sodium, and was preferred on account of its tastelessness and freedom from disagreeable after-effects.

In the cases of chronic rheumatism and arthritis deformans, while it lessened the pain, no permanent improvement was observed. In neuralgic affections it proved superior to antipyrin, phenacetin and antifebrin.

FRÖHLICH (*Wiener medicinische Wochenschrift*, Nos. 27 and 28), states that he has used salophen in thirty cases. In acute rheumatism he finds that its action is as prompt and as efficient as either salicylate of sodium or salol, and he claims for it the following advantages: It is tasteless; it can be administered in any form; even when given in large doses for a protracted period it does not cause gastric disorder; it seldom causes ringing in the ears, or any cerebral disturbance. In chronic rheumatism salophen sometimes did good, but frequently failed.

The drug appears to be valueless as an antipyretic.

HARE (*Therapeutic Gazette*, January 16, 1893) gives the results of his experience with salophen in rheumatic affections. The drug was generally administered in pill form, in the dose of ten grains three or four times a day, and did not cause any gastric disturbance.

In one case a woman, aged 65, suffering with severe sciatic neuralgia and muscular rheumatism, salophen gave an excellent result after salol had failed.

In the second case, rheumatic neuritis, involving the brachial plexus, of several weeks' duration, salophen gave complete relief after most of the anti-rheumatic remedies had been tried without success

In the third case, a middle-aged man, suffering with myalgia and neuralgia in various parts of the body, particularly in the spermatic cord and testicle, and in whom there was a distinct uricæmic tendency, salophen proved very serviceable.

The fourth case was a woman, aged 62, who suffered with frequent severe headaches, which often produced nausea and digestive disturbance; the scalp was quite tender to touch. The exhibition of a diuretic mineral water and salophen gave complete relief.

In conclusion, the writer states that while the results are not sufficient to prove conclusively that salophen is of great value in rheumatism, yet they have encouraged him to use the drug with confidence.

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Agathin as an Analgesic.

E. Rosenbaum (*Deutsche medicinische Zeitung*, 1892, No. 50) reports his experience with this new analgesic. The drug was administered in doses of 50 centigrammes, repeated twice daily. No bad after-effects were observed, except in one case, in which there was some headache, lasting half an hour. In most cases the drug seemed to increase the appetite and caused free perspirations. Generally good results do not follow until 4 to 6 grammes of the drug have been taken. Two cases of sciatica were successfully treated. In four cases of articular rheumatism, two were completely cured, and two ameliorated. In one case of neuralgia the remedy yielded no results.

Dr. Laquer, in another ward of the hospital, successfully treated a case of supra-orbital neuralgia with agathin, which had resisted the action of salicylic acid. Another case of trifacial neuralgia was also promptly cured by the same remedy.

Dr. Loewenthal also obtained good results with agathin in several cases of neuralgia and in chronic articular rheumatism which had resisted salicylates and antipyrin.

Tropacocaine as a Local Anesthetic.

Dr. Hugenschmidt (*La Semaine Médical*, February 13, 1893) confirms the results of Chadbourne's experiments with tropacocaine. The ingestion of one-third to two-thirds of a grain produced no appreciable effect on an adult. When two-thirds of a grain were injected rapidly into the region of the lower maxilla, vertigo, uneasiness about the heart, and a marked fall of blood pressure were observed within three minutes. This effect was transient, and in ten minutes the pulse returned to normal. Doses of one-third to two-thirds of a grain do not affect respiration, whereas it is easily affected by full doses of cocaine. The above doses produce no effect on the nervous system, whereas similar doses of cocaine often produce marked symptoms of cerebral anemia. Tropacocaine exerts no influence on the vaso-motor system. Dr. Hugenschmidt believes that tropacocaine is likely to prove of great value as a local anesthetic. He employed it as such in thirty-seven cases, never exceeding five-twelfths of a grain, usually in the following solution:

℞. Tropacocaine.....gr. ij.
Distilled water.....℥j.
Sig.—Ten minims for an injection.

It is of the greatest importance that the injection should be made slowly. One-third of a grain was found sufficient to produce anesthesia when the injection occupied fully a minute. With this dose no toxic symptoms were observed in the thirty-seven cases.

Dr. Hugenschmidt claims for tropacocaine the following advantages over cocaine:

(1) Being prepared synthetically, it is less liable to variation than cocaine which is obtained directly from the plant.

(2) In equal doses, consistent with the production of anesthesia, tropacocaine is less toxic than cocaine, and exerts very little influence on the vital functions of the organism.

(3) Local anesthesia is produced more rapidly with tropacocaine, and lasts the same time as that produced by cocaine.

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(4) Tropacocaine being antiseptic, its solution can be kept unaltered for months, whereas solutions of cocaine have a tendency to undergo decomposition and lose their analgesic properties after four or five days.

Alumnol.

In the *Berliner klinische Wochenschrift*, 1892, No. 46, Heinz and Liebrecht report excellent results from the use of this new antiseptic astringent, which is a combination of naphthol sulphate and aluminium. It occurs as a fine white powder, freely soluble in water, alcohol and glycerine. Like other astringents, it precipitates albumen, but it differs from the rest in that the precipitate re-dissolves in an excess of albumen, so that the remedy is enabled to act on deep as well as superficial tissues. A 1 per cent. solution destroys the bacilli and spores of anthrax, pyocyaneus, prodigiosus, etc., in twenty-four hours. One one-hundredth of a 1 per cent. solution checked the growth of anthrax, typhus, cholera, Finkler, Prior, pyocyaneus, prodigiosus, staphylococcus cultures, and a four-tenths of a 1 per cent. solution entirely prevents the growth of these bacteria. Stronger solutions than 5 per cent. are irritating, and solutions stronger than 10 per cent. are caustic. In suppurating cavities and surfaces irrigations with ½ to 2 per cent. solutions give excellent results. In sinuses and small abscesses a 10 to 20 per cent. solution may be used advantageously. In gynecological practice from 1 to 20 per cent. solutions may be employed. In gonorrhea in males a 1 to 2 per cent. solution, injected several times daily, caused speedy destruction of the gonococci. The drug has also been employed successfully in otological and ophthalmological practice.

Chotzen (*Berliner klinische Wochenschrift*, No. 48, 1892), has employed alumnol in more than 300 cases with good results. It was applied pure in soft chancres. In balanitis, moist eczema, etc., he employed a 10 to 20 per cent. mixture with inert powders; 1 to 5 per cent. solutions were employed in moist and papular eczema, acne, boils, and urethritis. In lanolin ointment (2½ to 20 per cent.) the drug was serviceable in eczema, seborrhea, psoriasis, and favus.

Copaiba in Cirrhosis of the Liver.

Georginewski (*Revue de Therap. Medico-Chirurg.*, December 15, 1892) has employed the balsam of copaiba in twelve cases of hepatic cirrhosis. In all of the cases the action of the drug was remarkable. The urine increased two or three times its usual amount, and continued so for eight days. There was a great reduction in the ascites, and a marked improvement in the general health. In one case the symptoms did not return during eight months. The copaiba, however, caused some inconvenience—coated tongue, distention of the stomach, and occasionally diarrhea. Georginewski subsequently studied the action of copaiba on dogs. The toxic effects were only induced after the administration of very large doses two hundred times larger than therapeutic doses). In this quantity copaiba caused diarrhea with bloody stools. At the autopsy no changes were observed in the kidneys beyond those which could have been attributed to excessive functional activity.

Salol in the Stomach and Intestine.

Dr. Paul Cornet (*Le Progrès Médical*, 1892, No. 44) performed a series of experiments on dogs to ascertain the changes which salol undergoes in the alimentary canal. He found that in an hour the decomposition of the drug was

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exclusively in the intestine, but this was not the case at the end of two and a half to three and a quarter hours after the ingestion of thirty or forty-five grains of salol. Lépine, by the microscope, and the author, by analysis, both detected undecomposed salol in the feces and in the intestine. The detection of salicylic acid in the stomach, and the arguments of Papuli, Renzi, Réale and Gley, weaken the theory that the decomposition of salol is effected entirely by the pancreatic juice. The slow decomposition of salol in the stomach impairs its value in determining the motor power of stomach as suggested by Sievers and Ewald.

The author draws the following conclusions from his experiments: (1) Salol is at first decomposed in the intestine. (2) Salicylic acid is found in the stomach two or three hours after the ingestion of thirty to forty-five grains. (3) Salol is not completely decomposed in the intestine, for some is detected in the feces.

Thyroid Extract in Myxedema.

Mendel (*Münchener medicinische Wochenschrift*, November 29, 1892) reports a favorable result from the injection of thyroid extract in a case of myxedema. The disease was in a woman, aged 58, was of four years' duration, and presented the following symptoms: Extreme mental apathy; swelling of the body; atrophy of the skin on the hands and feet; low temperature (94° to 97° F.), scanty urine with deficient urea, pulse small and sixty per minute. After daily injections the mental and physical conditions considerably improved.

A. Barron (*British Medical Journal*, December 24, 1892) reports two cases greatly improved by thyroid injections. The one was a woman, aged 64, in whom the disease had lasted five years. In four months she received thirty injections, usually given twice a week. At present she is receiving one injection a week, and considers herself perfectly well. The second case was a single woman, aged 55, with marked symptoms of myxedema. In less than seven weeks after thirteen injections the weight had fallen eighteen pounds; there was free perspiration on exertion; distinct speech, and a remarkable improvement in the general condition.

Cecil F. Beadles (*Ibid.*) reports a case of myxedema with insanity, in which great mental and physical improvement followed the injection of the extract. The patient was a single woman, aged 50, and her illness was of eight years' duration. The disease began as myxedema, and three years later she developed religious melancholia with delusions. After five months' use of the thyroid injections there was a great improvement in both the mental and physical condition.

At a meeting of the Clinical Society of London (*The Medical Weekly*, February 3, 1893), Drs. Davis, Pasteur and Calvert showed several cases of myxedema greatly improved by the internal administration of fresh thyroids, obtained from sheep. The amount varied from one-eighth of a gland twice a week to a whole gland daily. Dr. Murray, who first suggested the treatment, said he used a mixture containing equal parts of thyroid juice, glycerine and a .5 per cent. solution of carbolic acid. A drachm and a half of this solution corresponded to one sheep's thyroid. He at first injected twenty-five minims hypodermically, but if this caused local irritation he reduced it to fifteen minims. For internal use he used equal parts of thyroid juice and glycerine. Four times the subcutaneous dose were required when the remedy was given by the mouth.

Turpentine Injections in Pneumonia.

Grenell (*Bull. Méd. des Vosges*, October, 1892) states that he has employed turpentine injections successfully in a grave case of pneumonia of the right apex,

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with broncho-pneumonia of the left side. The usual stimulating treatment, and the injections of ether and caffeine, gave negative results. The author injected two grammes of oil of turpentine in the left deltoid region, and one gramme in the right. At the end of twenty-four hours there was visible improvement. Five days later the doctor opened the purulent collections caused by the injections. Grenell attributes the cure to the turpentine employed in this way.

Treatment of Ménière's Disease.

Dr. Roméo Mongardi (*Annales des Malad. de l'oreille*, December, 1892) reports three cases of Ménière's disease cured by the administration daily of three powders containing each three grammes of bromide of potassium, and three pills (valerianate of iron one gramme, opium twenty-five centigrammes, extract and powder of cascara sagrada q. s. ad pil. xii). The cure was permanent. The superiority of this method over the cinchonism suggested by Charcot consists in:

(1) The remarkable improvement of the hearing.

(2) The disappearance of the vertigo after the first day's treatment.

(3) The permanent disappearance of the titubation.

Suspension in Chronic Myelitis.

Kirchner (*Berliner klinische Wochenschrift*, November 21, 1892, No. 47) reports a case of chronic myelitis in which complete cure followed treatment by suspension. The disease had commenced about a year before admission to the hospital, with loss of power and pain in the extremities. The reflexes were lost, and the muscles showed slight atrophic changes. There was also slight impairment of the mental power. After fifty suspensions the gait became normal, and the reflexes returned, the right knee-jerk being somewhat more feeble than the left. The patient was discharged as completely cured.

Glycerine in Nephrolithiasis.

Hermann (*La Mercredi Médical*, December 28, 1892), in a paper read before the Society des Medicine Allemande de Prague, praises highly the internal employment of glycerine in nephrolithiasis. He believes that the researches of Colosanti, Catillon and Orbacewski, which prove the solubility of uric acid in glycerine, and the elimination of the latter through the urine, fully justify this treatment. In fourteen cases in which the remedy was tried ten were successfully treated. He gave fifty to one hundred grammes of glycerine at once or in divided doses. On the following day the urinary concretions were discharged in viscid urine. Only twice did the drug give any inconvenience: A sluggish diarrhea in a man of 32 years; a little nervous excitement in a man of 34 years. The administration of the glycerine in persons not suffering from nephrolithiasis did not excite any morbid phenomena unless there had been previous derangement of the digestive tract; nearly all complain of extreme thirst a short time after taking the glycerine, and in nephrolithiasis it causes, two or three hours after its administration, symptoms resembling renal colic.

In the discussion which followed von Jaksch stated that Ferrand had previously praised the drug in this disease.

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OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,
FRANK W. TALLEY, M.D.

SYMPHYSEOTOMY.

SCHWARZ (*Centralblatt für Gynäkologie*, No. 5, 1893) performed symphyseotomy for the extraction of an amputated head, which had been retained in the uterus. The patient was a 22-year-old III-para. The first child had been delivered by forceps after three days' labor, dying during the extraction, and the mother had suffered for eight weeks from traumatism and fever. The second child was in transverse position, and delivered by version, dying during the extraction. In the third labor the head presented, forceps was applied, but the head could not be brought into the pelvic inlet. Version by the feet was then performed, and the child extracted to the head, which could not be brought out of the uterus, even though the forceps was re-applied. The uterus was then given time to expel the head spontaneously, and not succeeding, after again resorting to forceps, the child in the meanwhile having died, decapitation was performed, that the forceps might get a better hold on the head. An alarming hemorrhage, from injury to the lower segment of the uterus, required tamponing of the os and vagina. The woman was seen by Schwarz about twelve hours later in an eclamptic condition. The pelvis measured: Spines, 21; crests, 23; external conjugate, 16.8; conjugate diagonal, 10.5. Uterus firmly contracted. Under chloroform narcosis, a penetrating wound of the neck and under segment of the uterus, about 8 cm. long, was found. Fearing to increase the tear, or to rupture the uterus, by forcible attempts at extraction, Schwarz decided upon symphyseotomy. After dividing the symphysis there was a separation of 3 cm. After applying the forceps, the ends separated to 7 cm., allowing the head to pass without difficulty. After expressing the placenta, the wound in the uterus was closed by six sutures, and an iodoform drain placed in the cavity. The symphysis was united by four and the skin wound by six sublimated silk sutures.

The child's head measured: Fronto-occipital, 11.5; mento-occipital, 12.8; bi-temporal, 10; bi-parietal, 8. The patient left her bed in six weeks.

THE EMPLOYMENT OF KITCHEN SALT IN THE PERNICIOUS ANEMIA FOLLOWING POST-PARTUM HEMORRHAGE.

NEICHTOUBÉ (*Vratch*, No. 20, 1892) reviews the methods of administering the saline solution by the mouth, under the skin and in the veins. The subcutaneous injection, and that into the veins, requires previous sterilization and special apparatus. More accessible on all occasions is the injection of salt water into the rectum. Neichtoubé cites five cases, in each of which he injected a litre of saline solution into the rectum. In all of the cases there was a favorable termination. In one case of typhoid which had aborted, he gave the injection despite the diarrhea.

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Prompt and Radical Treatment of Mammary Abscess.

Weber, of Chicago (*La Semaine Médicale*, February 10, 1893), describes the following treatment for abscess of the mammary gland, for which he claims (1) rapid healing; (2) union practically by first intention, which, by the non-formation of connective tissue, allows the functions of the gland to be uninterfered with, and avoids the liability of subsequent development of cancer.

As soon as he is satisfied of the presence of pus the gland is freely incised, several openings being made in a radiating manner, from the areola toward the periphery. The finger is then introduced and the cavity of the abscess explored in all directions. All the necrosed and broken-down tissue is carefully scraped out with a sharp curette, and the wound washed out with an antiseptic solution. The abscess cavity and wounds are carefully packed with strips of gauze soaked in a 1 per cent. carbolic acid solution. The breast is dressed with similar gauze, covered with gutta-percha tissue or oil-silk, and the dressing retained by a roller bandage. At the end of thirty-six hours the packing is removed and the cavity again irrigated and repacked. After twenty-four hours a similar toilet is performed, when, under the influence of the moist dressing, inflammation will have subsided and the suppuration will have ceased. At the next dressing, after removing the packing, the breast is covered with a thin layer of gauze, and a large sterilized sponge, which has been squeezed dry from a 1 per cent. carbolic acid solution, is laid upon it and a bandage applied to exert firm pressure. The object is to bring the walls of the cavity into close apposition. When the bandage loosens in a few hours, two or three ounces of a 1 per cent. carbolic acid solution may be poured upon the sponge, which, in swelling, tightens the bandage. In applying the sponge care should be taken that the breast is not compressed in a pendulous position, and that the nipple is in the centre of the compressed area.

The dressing is changed every day. By the eighth or tenth day the wound is completely healed. Should a few granulations persist along the lines of incision, they may be healed by strapping or skin grafting.

The Occurrence of Sugar in the Urine During the Puerperal State.

Drs. McCann and Turner (the *British Medical Journal*, December 24, 1892) reported to the Obstetrical Society of London the results of the examination of the urine from 100 mothers for the presence of sugar. The conclusions arrived at are as follows:

(1) That sugar is present in the urine during lactation. (The authors assume, with Hoffmeister, that this sugar is milk sugar.) Glucose may also be found. (2) That sugar is present at some period in every case. (3) That in the majority of cases the largest amount occurs on the fourth and fifth days of the puerperium. (4) That the quantity depends on (*a*) the condition of the breasts; (*b*) the quantity and quality of the milk; (*c*) the sucking of the child. Out of 100 cases the average quantity was 0.35 per cent., that is, 1½ grains per ounce. (5) That when lactation is diminished or suppressed, the amount of sugar diminishes or disappears. (6) That when the production and exhaustion of the milk are equal, the amount of sugar is very small. Cases showing the varying conditions observed were cited in detail.

Concerning the Question of Eclampsia Bacilli.

Döderlein, of Leipzig (*Centralblatt für Gynäkologie*, No. 1, 1893), reports the results of the bacteriological examination of eight cases of eclampsia, which negative those of Gerdes, and agree with those of Hoffmeister and Hagler. The

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investigations were made from the urine of the mother, in four cases from the maternal blood, from the blood of the child, from the placenta, in two cases from the child's urine, under careful antiseptic precautions. From this material about fifty inoculations were made, all of which, with the exception of those from the maternal urine, remained sterile. The culture-media, which had been inoculated with the urine from the mothers, showed a rich development of the most varied forms of germs, especially bacteria in chains. A number of investigations, made upon healthy pregnant women for comparison, were convincing of the impossibility of procuring urine, even under the most careful methods, without infecting it by the uretheal secretions, which are rich in bacteria. Döderlein, therefore, draws the conclusion that the eclampsia bacillus of Gerdes is not the cause of eclampsia.

The Treatment of Albuminuria Gravidarum.

Jaccoud, of Paris (*La Semaine Médicale*, February 10, 1893), places pregnant women, as soon as they have shown signs of albuminuria, upon an exclusive milk diet, and continues it until labor has taken place, even though the albumin disappears from the urine. He examines the urine at least once a week. If it shows no other change than the presence of a certain quantity of albumin, he prescribes the daily inhalation of oxygen, using at least thirty litres in the twenty-four hours. If the urea excreted is below normal, the quantity of oxygen is increased to twice or three times this amount. The patient should be carefully protected from cold, and should uremic symptoms appear he resorts to phlebotomy.

Jaccoud further insists upon the systematic use of milk by all pregnant women to prevent the occurrence of albuminuria. He directs them to commence with two pints a day, gradually increasing to three pints, until the end of the sixth month, after which two quarts daily should be taken. After labor the quantity is gradually decreased during the following six weeks.

Concerning the Etiology of Rupture of the Uterus During Pregnancy and During Labor.

From the study of twenty-two cases of rupture of the uterus during pregnancy Blind (*Centralblatt für Gynäkologie*, No. 5, 1893) draws the following conclusions: (1) The rupture was constant in the fundus. (2) Frequently there is found a marked thinning in the neighborhood of the tear. (3) With relative frequency the point of rupture coincides with the placental attachment. (4) The tubal cornua, when they give attachment to the placenta, are relatively disposed.

Blind adds two cases of spontaneous rupture during labor to the seventeen cases found in the literature. The first was a 44-year-old XII-para. Buttock presentation, pains feeble. The child was extracted by a midwife; placenta did not follow. On examination coils of intestines were found in the uterine cavity. Celiotomy was performed, and the tear in the posterior wall of the uterus was sewed up. Uterus contracted well under injections of ergotin. There was no fever. Woman died on the seventh day of ileus. Microscopical examination showed a shortening of the muscle fibres of the uterus. The etiology of the rupture consisted in the deficient dilatation of the cervix, and insufficient hypertrophy of the muscle fibres.

The second case occurred in a 38-year-old XIII-para; child in transverse position; placenta previa. Combined version was performed, and child extracted. Placenta followed in four minutes without hemorrhage. Soon after the woman went into collapse and died. There was left-sided cervical tear. Here, also, there was recognized microscopically, a deficient hypertrophy of the muscle fibres, and insufficient dilatation of the cervix was assigned as the cause.

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GYNECOLOGY.

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

ENDOCERVICITIS.

HEYWOOD SMITH (*British Gynecological Journal*, November, 1892), in opening a discussion of the treatment of chronic endocervicitis, pointed out the fact that this condition often followed upon chronic cervicitis associated with induration and granular lesion of the lips of the cervix. The author advises a preparatory treatment of the uterus for the purpose of obviating dangers which might result from the immediate application of the curative treatment to the uterine cavity. These preparatory measures consist of leeching or scarifying the cervix, and then applying glycerine tampons; also the use of hot douches. These measures are to be employed for about a week, and then the cervix is to be dilated for the purpose of applying the remedy. In reference to the method of dilatation, the use of sponge tents is not advocated, from their liability to produce infection; and preference is given to the graduated metal sounds, a No. 12 sound giving sufficient dilatation for this purpose. An applicator wrapped with cotton and saturated with strong carbolic acid or iodized phenol would answer in some cases, but a more reliable plan of treatment consists in allowing the application to remain in contact with the diseased tissues for a longer time; and for this purpose the author had prepared some boxwood stems, with a string attached to each one. Cotton wrapped around one of these and saturated with the medicine and carried up into the cervical canal, may remain in situ for two or three days without causing pain, and thus give a continuous action upon the diseased structures; or a folded piece of lint soaked in the medicine may be passed up with a pair of forceps and gently packed into the canal, and a tampon placed in the vagina afterward. Other applications may be useful, such as chromic acid, nitrate of silver and acid nitrate of mercury, the last-named drug being almost a specific in granular disease. The author did not consider the usefulness of curetting and some other methods of treatment, as the paper was not exhaustive.

BACKWARD DISPLACEMENTS OF THE UTERUS.

HERMAN (*Lancet*, January 14, 1893) read a paper before the Obstetrical Society of London upon the frequency of the local symptoms associated with retroflexions, basing his conclusions upon an analysis of 407 cases of the abnormality. He found that nine-tenths of the cases had chronic pain of some kind. The most frequent seat of pain is the back, generally the sacral region. Next in order come sensations of descent or dragging, referred to the ovarian regions, more frequently on the left side, in the proportion of three to one as compared with pain on the right side. In a small proportion of cases lower abdominal pain is the chief complaint, while a small minority complain of trouble in locomotion. Pain in defecation is observed in less than half the number of cases of retroflexion, and in these cases the trouble arises from diseased conditions of the rectum rather than from the flexed uterus. Dysuria is not dependent upon the flexion, except as the malposi-

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tion produces bladder irritability, which is seen in about one case in five. Dyspareunia is present in at least one-sixth of the cases. Leucorrhea is not found to be commoner in cases of retroflexion than among other patients.

The Use of Pessaries.

Henry C. Coe (*Practice*, January, 1893) remarks that pessaries, like other surgical supports, should fit accurately. Neglect of the observance of this rule has caused much mischief, and forced patients to regard them with but little confidence. Pessaries should not be used to replace a prolapsed or retroflexed uterus, but should be simply inserted to retain the organ in its proper place after repositing it with the fingers. The last method for reposition is by the introduction of the fingers into the vagina while the patient assumes the knee-chest posture. Sounds and other repositors are not to be used. A fixed uterus and ovaries, or painful masses about the uterus, are contraindications to the employment of pessaries, no matter how snugly they may fit.

A Rare Form of Double Pyosalpinx.

A. C. Butler-Smythe (*Lancet*, January 14, 1893) gives the history of, and illustrations of the specimens removed from a case of pyosalpinx which seemed to have its origin in an attack of abdominal inflammation about seven years prior to the operation. The patient was 26 years old, had been married five years, and was sterile. She was usually in good health after marriage, complaining only of dyspareunia. About two years before her marriage she had an attack of pleurisy and was tapped on the right side. Six months later she had an attack of "abdominal inflammation," with distended abdomen, and was kept in bed for "some weeks," but recovered and married soon after. About two months before operation she complained of pain in the pelvis, and thought she detected a lump there; and, upon examination, two large, adherent masses were found filling the pelvis and extending, on one side, to the umbilicus. There was no marked tenderness about the masses, nor could fluctuation be elicited by abdominal or vaginal examination. The tumors were removed without rupturing, although there were numerous and firm adhesions existing between them and the intestines, and also between the omentum and the peritoneum of the abdominal walls. The ovaries were removed with the tubes, as their connection with them was so intimate that it was impossible to separate them. The abdominal cavity was not irrigated nor drained. After sponging, the wound was closed with silk sutures. The operation lasted two and a half hours, but the patient was not shocked much, and promptly rallied and recovered. A year later she was reported as quite well and strong, having gained flesh and been entirely relieved of dyspareunia. Three months after operation she had a menstrual flow, and these have recurred about every month, varying in quantity and unattended with pain. A report upon the specimens by Bland Lutton is appended: "The cysts are enormously distended Fallopian tubes. Sections prepared from them exhibit a thin layer of muscle tissue, lined internally with granulation tissue. There are no traces of epithelium, and the mucous membrane has completely disappeared. Large dilated tubes of this character differ in many points from the common forms of pyosalpinx secondary to septic endometritis and gonorrhea. I have only seen two other examples similar to these specimens, and until more is known of their pathology they should stand in a separate class."

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Dysmenorrhea, Menorrhagia and Leucorrhea.

Goodell (*Practice*, January, 1893) recommends the performance of rapid dilatation of the uterine canal for dysmenorrhea due to acute anteflexion and stenosis. If there has been menorrhagia, curetting is also done for the purpose of removing granulations from the endometrium. Always after curetting, the uterine cavity is irrigated with a 1:2000 bichloride of mercury solution through a double canula, and every loose particle washed away. A strip of iodoform gauze is then carried up to the fundus and packed into the canal, and a suppository of iodoform (grs. x-xx) placed in the vagina. Curetting and packing with iodoform gauze is also useful in cases of endometritis associated with copious leucorrhea. Dr. Goodell has performed rapid dilatation about 400 times for dysmenorrhea, in addition to the combination of this operation and curetting for other conditions, and has not yet seen any bad results from it. The presence of active inflammatory tubal or ovarian disease is a contraindication to the operation.

Some Interesting Ovariotomies.

McMurtry (*Medical and Surgical Reporter*, February 25, 1893) reports three cases of ovariotomy, the peculiar features of which still further confirm the statement of Mr. Greig Smith, that this is "the most successful major operation in surgery."

Two of the patients were over 71 years of age.

Case I traveled from Kansas to Louisville in order to have the operation performed. After opening the peritoneal cavity, the operator found numerous intestinal and bladder adhesions, which were old and firm. There were two cysts present, and the one on the left side had a pedicle which was the largest that the author had ever dealt with. It was quilted with a double ligature and another ligature around. The patient made an easy and complete recovery.

Case II had a double ovarian cyst, and when operated upon was in a serious condition—rapid pulse, high temperature and vomiting. Peritonitis was active around the larger cyst, and in addition to the old adhesions fresh ones were forming. It was found that the pedicle of the larger cyst was twice twisted, the circulation being shut off from the sac, and was sloughing. The interior of the sac was filled with clots and dark-colored fluid, the result of hemorrhages in the interior from obstruction of the circulation by this twisted pedicle. Both tumors were removed, the peritoneal cavity was thoroughly irrigated and drained, and she made an unusually prompt recovery.

Case III was but 21 years old, and had active peritonitis at the time of operation, from the sloughing sac of a strangulated multilocular ovarian cyst. In separating the adhesions the sac ruptured and about a gallon of pus ran out over the table. Both tumors were removed, the cavity irrigated with three gallons of water and the patient put to bed very considerably shocked. She reacted well and finally recovered, but not until after she had passed through a typical attack of typhoid fever lasting five weeks.

The Relation of Pelvic Disease to Psychical Disturbance in Women.

George H. Rohé reported to the recent meeting of the American Association of Obstetricians and Gynecologists the results of his examination and treatment of pelvic diseases among insane women in the Maryland Hospital for the Insane. Upon the supposition that mental disorders, while not necessarily dependent upon the existence of previous pelvic disease, may be aggravated by such a condition, thirty-five women were subjected to a vaginal examination, and of this number

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twenty-six were found to be suffering from some form of pelvic disease or abnormality. In some cases that were not examined nor suspected of having disease of the genitals, an autopsy revealed such lesions. Eighteen cases were selected for operation, and the majority of these had the appendages removed. Sixteen of these cases recovered from the operation; three of them have been discharged from the hospital apparently well both physically and mentally. In ten, considerable improvement followed the operation in both physical and mental conditions, and in three the operation was of too recent date for the expression of any conclusion.

Apropos to the above report may be mentioned the fact that similar treatment has been extended to some of the inmates of the Norristown Asylum (*Medical and Surgical Reporter*, December 31, 1892), and among thirty patients examined by Dr. Maria B. Werner, the great majority had positive and easily recognizable disease of the pelvis, some cases requiring prompt operative measures. While the mental condition of some patients has not been at all improved by the cure of pelvic disease, on the other hand some insane women have been restored to their normal mental condition, and whatever may be said pro or con about this procedure, the results seem to show the truthfulness of Dr. Rohé's concluding remark, that we are required "in the name of science and humanity to give to an insane woman the same chance of relief from disease of the ovaries and uterus that a sane woman has."

PERINEORRHAPHY, MYOMECTOMY AND OVARIOTOMY DURING PREGNANCY.

The November issue of the *British Gynecological Journal* contains abstracts of articles illustrating the tolerance of the pregnant uterus to operative interference upon or near to it.

WEIL (*Prager medicinische Wochenschrift*, 1892, No. 11) reports an operation upon a perineum which was lacerated completely, and involved the sphincter and recto-vaginal septum. The patient was in the fifth month of pregnancy, but no unfavorable action was observed upon the course of gestation, and a living child was delivered at term.

Weil considers it far better to operate upon such cases while pregnant, than to allow the patient to suffer from the effects of a lacerated perineum. The lack of perineal support may induce abortion, or a persistent diarrhea may soon cause impairment of the patient's strength.

Under the heading of myomectomy, STRAUCH (*St. Petersburger medicinische Wochenschrift*, 1892, No. 10) records an operation for subserous pedunculated fibroid in a patient who was advanced four months in pregnancy. The pedicle was ligated, tumor removed, and the peritoneum stitched over the stump. The operation was short, the recovery uninterrupted, and the woman was delivered of a live child at the end of nine months.

CHRISTIAN FEUGER (*Journal of Gynecology*) operated upon a patient four months' pregnant for the removal of a dermoid cyst. The woman went on to term, and was delivered of a six-pound child. It is important to remove these growths, for they increase rapidly in size during pregnancy, and complicate delivery if located in the minor pelvis, or the gravid uterus may cause torsion of the pedicle, circulatory disturbance, gangrene or perforation of the cyst. Feuger's statistics show the danger of these cysts when complicating pregnancy: In 350 deliveries, 113 maternal and 216 fœtal deaths occurred. Puncturing the cyst has only a temporary advantage, and has some serious disadvantages, viz., the cyst may be malignant and poison the patient; there is a liability of puncturing the uterus, and the mortality of puncture of such cases in general is 19 per cent. Ovariotomy gives the best results.

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PATHOLOGY

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

A Hairy Pharyngeal Polyp.

L. Conitzer (*Deutsche medicinische Wochenschrift*, December 22, 1892) removed from the pharynx of an otherwise healthy man a curious polypoid tumor which when in situ appeared very light colored against the inflamed pharyngeal wall, and which when removed was found covered with a glistening white structure similar to the external skin, and full of small blond hairs. The structure consisted of a central cartilaginous nucleus surrounded by fatty areolar tissue, and the whole was covered with a very typical skin furnished with hairs, sebaceous glands, sweat glands, and another larger form of gland which is not accurately described. The following short table gives a summary of reported cases, and is of considerable interest:

No.	Author.	Age.	Position of Growth.	Chief Const't.	Covering.	Peculiar Constit'ts.
1	Lambl.	6 months.	Pharynx.	Fat.	Skin, with hair and sebaceous glands.	
2	Clerault.	New-born infant.	Hard palate.	"	Skin, with sweat glands.	Striated muscle.
3	Barton.	22 years.	Soft palate.	"	Skin, with sweat glands.	Fibrous cartilage.
4	White.	3 years.	"	"	Skin, with sweat glands.	Elastic cartilage.
5	Schuchart.	6 months.	Left side of posterior pharyngeal wall.	"	Skin, with sweat glands.	Striated muscle.
6	Arnold.	13 years.	Soft palate.	"	Skin, no sweat glands.	Elastic cartilage.
7	Goschler.	New-born infant.	Left side of anterior pharyngeal wall.	"	Skin, no sweat glands.	
8	Otto.	"	Left side of the posterior part of the soft palate.	"	Skin, sweat glands and smooth made fibres.	Hyaline cartilage.
9	Proucalli.	"	Arcus glosso-palatinus.	"	Skin, sweat glands and smooth made fibres.	
10	Conitzer.	26 years.	Left side of anterior pharyngeal wall.	"	Skin, sweat glands and smooth made fibres.	Hyaline cartilage and lymph follicles.

The Antitoxic Action of Blood-Serum in Cholera Convalescents.

A. Lazarus (*Berliner klinische Wochenschrift*, No. 43, 1892) following the theory of Behring that acquired immunity can be transmitted from one individual to another in the blood-serum of the immune, injected into the peritoneal cavity of three guinea-pigs blood-serum from three convalescent cholera cases. A few hours after this virulent cholera bacilli were injected. In the control experiments prompt intoxication followed, while the immune individuals remained thoroughly resistent. The extremely small amount, 0.0001 of serum protected two animals, while to prevent a certain fatal termination of the case only 0.00001 of the serum was necessary. To close these interesting experiments, the experimenter sought

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to determine whether this remarkable prophylactic principle might not also be capable of bringing about a cure. Animals were now injected first with virulent cholera bacilli and then at varying periods of time with the serum. From these experiments he found that rescue of the animals was possible one to two hours after, provided that no symptoms of the disease had set in. If even the slightest symptoms had occurred, the dose must be increased 100,000 to 200,000 times the prophylactic dose.

Rhinoliths.

Gerber (*Deutsche medicinische Wochenschrift*, December 22, 1892). Among foreign bodies which gain entrance to the nose, the following are mentioned: Fragments of food, seeds of various fruits, beans, peas, occasional buds, blossoms and roots, glass-pearls, buttons, nails, coins, stones, splinters, paper-balls, fragments of rings, knives, bayonets and lead-pencils, reeds, sole leather, covered buttons, accidentally detached fragments of brushes; tampons, laminaria pencils, sponge, etc., etc. Any of these can form the nucleus for a nasal concretion which may attain considerable size. Chemically these generally consist of sulphate and carbonate of calcium, these salts generally being deposited in masses of micro-organisms which accumulate about the foreign body. Not infrequently the leptothrix buccalis forms these masses, and in it the calcification occurs. In a case cited, the nucleus of the stone was a cotton plug. Around this a great mass of leptothrix has accumulated and later on calcified, with the production of a stone so large as to be immovable until broken. These concretions cause hemorrhages and ozena.

The Passage of Microbes through the Placenta.

Anche (*Sem. Méd.*, 1892, No. 61). Two women, one in the second, the other in the third month of pregnancy, became affected with smallpox and aborted. In the first fetus a pure culture of streptococcus, in the second the staphylococcus pyogenes were found. After the death of the patients the same micro-organisms were discovered in their blood and tissues as were found by the investigator in the feti.

Nephritis in Typhoid Fever Caused by the Bacillus Coli-commune.

Fernet (*Sem. Méd.*, 1892, No. 66) describes an acute case of nephritis in which large numbers of the baccilus coli-commune were found in the urine. He sees in these organisms the cause of the lesion of the kidney, and believes that the infection occurs through the blood. How the bacteria gain entrance into the circulation from the intestine is a question.

The Toxic Action of Blood in Acute Suppurative Processes.

F. Nissen (*Deutsche medicinische Wochenschrift*, 1892, No. 2) found that when the blood of individuals suffering from acute suppurative affections was injected into mice, the animals died in a short time, not from a septicemic process, as careful examination revealed the presence of no bacteria, but from a toxemia. Post-mortem examination of the mice showed hemorrhagic exudate, hepatization of entire lobes of the lungs and increased size of the spleen. Experiments with the blood of healthy individuals showed no such results.

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THE BACILLUS LANCEOLATUS FRAENKEL IN PYOSALPINX.

WITTE (*Deutsche medicinische Wochenschrift*, 1892, No. 20). A woman, aged 32 years, underwent an operation for the removal of pus tubes. In the pus, besides a few staphylococci, numerous encapsulated cocci, which retained the stain in Gram's method, and by microscopic examination appeared exactly like Fraenkel's pneumococcus, were found. In sections the pneumococcus were also found. No affection of the lungs existed. It is supposed that they must have gained entrance into the tubes from the vagina.

DERMATOLOGY.

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

DERMATOL.

ISAAC (*Deutsche medicinische Wochenschrift*, No. 25, 1892) speaks favorably of this remedy in intertrigo and in acute weeping eczema, where a drying effect is desired; also in the acute dermatitides produced by such substances as corrosive sublimate and iodoform, and in excoriations, fissures and burns of the second degree, and in secreting ulcers.

PENETRATION OF OINTMENTS.

AUBERT (*Journal of Cutaneous and Genito-Urinary Diseases*, December, 1892) experimented with atropine, causing the subjects to sweat through exercise, and then examining the fluid. With simple inunction, oils and lard penetrated best, but when friction was used lanolin did best, probably owing to erosions of the epidermis, or to the pulling out of hairs, which thus favored absorption.

A CASE OF XERODERMA PIGMENTOSUM, WITH POST-MORTEM EXAMINATION.

T. MCCALL ANDERSON (*British Journal of Dermatology*, December, 1892) reports a case of xeroderma pigmentosum, with the results of an autopsy. The case had been under the author's care for several years, and had caused extensive destruction of the tissues of the face. Contrary to expectation, the autopsy failed to reveal any disease of the internal organs and tissues. In the author's opinion the new growths upon the face were typical illustrations of epithelioma.

XANTHOMA TUBERCULATUM.

MORROW (*Journal of Cutaneous and Genito-Urinary Diseases*, January, 1893) reports a case of this affection which presented some unusual features with regard to the localization of the lesions, their grouping, and the presence of subjective symptoms not ordinarily met with in this malady. According to the statement of

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the patient the disease began with pain on the outer side and bottom of the left foot; three months later the heel of the right foot became painful, and seven months after the beginning of pain the lesions peculiar to the malady made their appearance on the soles of both feet. Some months later similar lesions made their appearance upon the knees and the left hand, pain being absent, however, in these localities. Upon the soles of the feet the tubercles ulcerated wherever they were subjected to pressure.

The treatment consisted in the application of a 20-per-cent. plaster of salicylic acid, which so disintegrated the nodules that they could be readily removed.

Extensive Shedding of the Skin.

A case of extensive shedding of the skin is reported by Blanc (*Journal of Cutaneous and Genito-Urinary Diseases*, January, 1893). The epidermis of the entire body was cast off in large pieces, that of the hands and feet coming away almost entire. The mucous membrane of the mouth was likewise exfoliated. Four such attacks, in the first of which the nails of the fingers and toes were lost, occurred within two years and four months. Slight elevation of temperature, with nausea and vomiting, accompanied the attacks.

A Contribution to the Study of Human Trichophytosis.

Sabouraud, from a clinical, microscopical and bacteriological study of human trichophytosis (*Annales de Dermatologie et de Syphilographie*, November, 1892), concludes that there are four types met with in man.

(1) The trichophyton with small spores, the ordinary parasite of tinea tonsurans, and never found upon smooth regions.

(2) The trichophyton with large spores, less frequently found in tinea tonsurans, but the usual cause of tinea of the beard, and causing about half of the cases of tinea circinata.

(3) The trichophyton with large spores, with special culture features, causing half the cases of tinea circinata, and specially those which present the appearance of an agminated folliculitis. It is never met with in the hairs.

(4) The trichophyton with large spores varying in size, found once in a tinea tonsurans with special features.

All these features are fixed in their characters.

Syphilitic Clavi.

Lewin (*Archiv für Dermatologie und Syphilis*, Heft I und II, 1893) calls attention to the syphilitic lesions found in the palms of the hands and soles of the feet resembling the ordinary clavus, and claims for them considerable diagnostic importance. He reports a number of cases in which, every other symptom of syphilis being absent, the presence of a single lesion gave the key to the diagnosis.

Palmer and Plantar Keratosis Probably Due to Arsenic.

T. C. Fox (*British Journal of Dermatology*, February, 1893) reports a case of palmar and plantar keratosis occurring in a young man 20 years of age as the result of the long-continued administration of arsenic. The thickening of the palms and soles was marked, and at first sight appeared to be diffuse and uniform.

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but upon closer inspection was found to be made up of a number of distinct lesions resembling plane warts. The patient had taken arsenic during a period of four years.

The treatment, which was entirely local, consisted in soaking the affected parts in soda and hot water, and the subsequent use of pumice stone; afterward strong salicylic acid plasters were applied. This treatment produced rapid improvement, and, when last seen, a cure seemed to have been effected.

MELANOSIS FOLLOWING THE ADMINISTRATION OF ARSENIC.

MÜLLER (*Archiv für Dermatologie und Syphilis*, Heft I und II, 1893) reports a case of arsenic melanosis, with the results of microscopical examination of excised portions of the pigmented skin. The patient suffered from an extensive psoriasis, for which arsenious acid was given. After about 0.3 gram had been administered pigmentation began to appear, partly on those portions of the skin which had been affected by the psoriasis, partly independent of these. The pigmentation appeared as variously-sized patches, some sharply circumscribed, others fading gradually into the surrounding skin. The visible mucous membranes were not affected. The microscopic examination showed pigment in the epithelium and the cutis. The epithelium pigment was most abundant in the basal cells, less so in the prickle-cell layer, and entirely absent in the upper part of the stratum granulosum. Extra-cellular pigment was likewise present in the shape of fine brown lines in the intercellular spaces. In the cutis the pigment occurred most abundantly in the papillæ.

CUTANEOUS SARCOMA RESEMBLING AN INFECTIOUS LYMPHANGITIS.

In a communication made to the Second International Congress of Dermatology and Syphilis (*Annales de Dermatologie et de Syphilographie*, November, 1892), HALLOPEAU and JEANSELME give the details of a case of cutaneous sarcomatosis presenting the clinical features of a tubercular lymphangitis. Their conclusions, from a clinical and microscopical study of the case, are in part the following:

(1) Sarcomatous tumors can remain limited to a single member for several years. They are propagated along the lymphatics and invade the ganglia, which seems for a time to offer an obstacle to their dissemination.

(2) These tumors become the seat of ulcerations, which may be persistent, or partial cicatrization may follow, which is not permanent.

(3) Their manner of distribution, their characters and their evolution present a great analogy with tubercular lymphangitis, but they are distinguished from it by the incessant hemorrhages which occur either within the neoplastic tissue or externally after ulceration.

(4) Hemoptysis supervening in the course of the disease is in favor of the diagnosis of an extensive sarcomatosis of the lung, unless the expectoration contains tubercle bacilli.

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BOOK NOTICES.

A Text-Book of the Principles and Practice of Medicine. By Henry M. Lyman, A.M., M.D., professor of the Principles and Practice of Medicine in the Rush Medical College, Chicago. Lea Brothers & Co., 1892.

The reader of the above volume will be at once struck with its excellence. Its contents are complete and concise, it is fully abreast with the times, and is such a book as is needed by students and practitioners. The average doctor has neither the time nor the patience to read through the pages of an encyclopedia to gain the points he desires. This practice will give him all the necessary information in a form easily grasped. It will at once take place with Osler's and Flint's Practice, and hold it. The parts of chapters relating to differential diagnosis leave nothing to be desired; they show the author's familiarity with his subjects, and his methods as a teacher. Evidently the points are not culled from other volumes; they bear the stamp of originality. Perhaps the addition of the Latin term for each disease, found at the heading of each article, will strike most as pedantic. It seems unnecessary in this age of universal use of modern terminology. "The preliminary considerations" might have been omitted in a work of this character. There are but few statements in the book which cannot be accepted as excellent teaching, and the disagreement on those points may, perhaps, depend solely on individual judgment. A few of these statements follow: On page 85 the clear description of the growth of larvæ of the tapeworm is rather misleading. One may, without careful reading, jump at the conclusion that the tapeworm originated in the human intestine from the egg, when, of course, no such statement is intended. The advice on page 111, to give a daily dose of *half a pint* of castor oil, strikes the uninitiated as a very curious proceeding. While the article on diphtheria, as a whole, is excellent, there is scarcely enough stress placed upon the differential diagnosis of diphtheritic from other anginas, surely an important point, and one easily obtained if the observer has access to a bacteriological laboratory. He speaks lightly of the albuminuria occurring in diphtheria, and not at all clinically, in common with most authors in the reviewer's experience, of the exceedingly fatal form of diffuse nephritis sometimes met with. Scrofula is treated as a distinct disease, and not as a form of tuberculosis, as it is now recognized by most authors. In the reviewer's experience, cholera morbus, while, perhaps, frequently demanding a hypodermic of morphine to relieve the pain, is much more satisfactorily treated by means of salol and bismuth than by the opium treatment advised by the author. On page 387 there is a typographical error, hepatitis being used where perihepatitis is evidently meant. The statement on page 455, that asthma, occurring in young children, disappears as the child reaches adult life, is certainly contrary to the usual experience, as is the statement on page 474, that croupous pneumonia attacks old people rather than those in earlier life. The administration

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of acetanalid in catarrhal pneumonia, would probably do more harm than the fever it is meant to combat. Certainly it is more dangerous, and no more useful than cold sponging. On page 481 he very properly advises stimulants in pneumonia of drunkards and old people, but in the same paragraph advises a rectal enema of ninety grains of acetanalid to reduce the fever, and says that digitalis must *not* be used, statements which, to say the least, are inconsistent. Instead of waiting for the rare termination, external pointing of pulmonary abscess, before surgical interference, certainly that interference should be done when there is a certainty of the presence of a superficial abscess. The application of the term nodular rheumatism to the very well named rheumatoid arthritis is unnecessary and misleading. The chapters on typhoid fever, influenza and cholera are especially good, and will be useful to all readers. It is pleasing to note, on page 568, that nitro-glycerine is advised in sufficiently large doses in contra-distinction to the insignificant doses usually directed. In a word, the volume is up to date, is readable and instructive, and is far superior to the majority of books of the kind.

TUBERCULOSIS OF BONES AND JOINTS. By N. SENN, M.D., Ph.D., Professor of Practice of Surgery in Rush Medical College; Professor of Surgery in the Chicago Polyclinic; Attending Surgeon Presbyterian Hospital; Surgeon-in-Chief St. Joseph's Hospital, etc. Illustrated with 107 engravings (seven of them colored). In one handsome royal octavo volume. 520 pages. Philadelphia: The F. A. Davis Co., Publishers, 1892.

It is with real pleasure that we welcome this work of Dr. Senn. Surgery has broadened so much during the past few years that it is not possible to get a fair knowledge of it from a work on general surgery, so that monographs comprising a single subject, or class of subjects, such as the one now under consideration, become in the highest degree necessary. A large proportion of foreign literature must of necessity remain unknown and unconsulted by the average surgeon, and the author deserves the thanks of the profession for placing in its reach such a mass of otherwise unattainable material. Being himself so well known in connection with work on the bones and joints makes also his personal contributions to the volume particularly valuable. The views expressed on treatment are so sound that the general practitioner, particularly if away from the large centres, will find its aid extremely serviceable in the management of these troublesome and dangerous affections.

The book begins with the history and pathology of tubercle, and follows with the treatment of its various local manifestations. The use of poultices, even when the skin is intact, is deprecated and compresses wet with antiseptic solutions recommended. Counter-irritation is condemned as harmful while mercurial inunctions, which are of value in syphilitic lesions are in tuberculous ones to be avoided. The use of tuberculin is mentioned unfavorably. Iodoform-ether has been abandoned on account of its producing localized gangrene and intoxication, while emulsions in oil or glycerine are advised. The author claims

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that 50 per cent. of bone abscess are amenable to the iodoform treatment; this appears rather high in view of the fact that König states that 20 per cent. of joint abscesses can be so cured. Arthrectomy is said to have a promising future in primary synovial tuberculosis of the knee and elbow, but is elsewhere inapplicable. The use of iodoform injections is extensively discussed, but that of chloride of zinc, as advised by Lannelongue, has not received much attention The author's views on resection are commendable: operation is only to be proceeded with after failure of intra-articular and parenchymatous injections. The references in the anterior portion of the book are in the body of the text; they are better placed as foot-notes, as was done farther on. The illustrations of osteitis deformans are hardly as typical as those of Paget, because they show deformity of the thorax and spine only. The index should be a little more extended, and the get-up of the work is only fair, but these are only minor parts. As a whole it is a very creditable and valuable work.

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UNIVERSITY
MEDICAL MAGAZINE

MAY, 1893.

THE PRESENT POSITION OF THE HYPODERMATIC METHOD IN THE TREATMENT OF SYPHILIS.

By J. William White, M.D.,

Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the University, German and Philadelphia Hospitals.

While the use of hypodermatic injections in syphilis dates back nearly thirty years, the alleged superiority of this method of treatment to all others has been most persistently set forth by its advocates during the last ten years. Their arguments are based primarily upon the shortcomings of the methods of mouth ingestion and inunction, and, further, upon certain alleged advantages claimed for the hypodermatic method itself.

The specific claims made by those who have been exploiting the method (Sukhoff, Damman, Eisenberg, Lang, Balzer, Lewin) are as follows:

(1) *The practitioner remains "master of the situation" throughout.*—This is one of the glittering rhetorical generalities indulged in occasionally by our Continental colleagues, which may mean anything or nothing, and to which a definite reply is always difficult. In this instance, under the most limited interpretation possible, it is not warranted by the facts.

(2) *The drugs needed may be easily obtained in the pure state.*—This is not peculiar to the hypodermatic method.

(3) *They may be prepared for use by the physician himself.*—This, if ever an advantage, is scarcely worth mention.

(4) *In the use of the soluble salts of mercury a precise dosage is obtainable.*—It may be safely asserted that the varying degrees of local reaction affecting the rapidity and the thoroughness of absorption, give rise to as much variation in the dose as do the differences in absorptive power in the skin and the gastro-intestinal mucous membrane.

(5) *It saves time and labor on the part of both physician and*

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patient, rendering visits more infrequent, etc.—This is doubtful, and not very important if true.

(6) *It necessitates but little alteration in diet, habits of life, etc.*—Such alteration under ordinary methods is practically only that indicated by the general rules of hygiene, and would be beneficial to most persons, non-syphilitics included.

(7) *The patient's skin and digestive organs remain unaffected except in rare instances.*—This is true, but is offset by the pain, the liability to abscess and other objections to be described later.

(8) *Stomatitis is of rare occurrence.*—This is not correct. The evidence goes to show that with equal care it is more likely to occur during hypodermatic medication, and when it does occur comes on more suddenly, and is more intense and uncontrollable than under either of the other methods.

(9) *It enables the patient to conceal the disease.*—This may have some little force when the method is compared with the inunction treatment, but is certainly a very minor point in any event.

(10) *It lessens expense.*—This is likewise of little importance, as the difference is not great.

(11) *It is more likely to effect an entire and permanent cure, and does so in the shortest time and with the minimum amount of mercury.*—This is, after all, the most important claim that is made, and if it could be established would warrant the adoption of the method to the exclusion of all others. I am of the opinion, however, that it cannot be substantiated, and at any rate am certain that the time has not yet arrived for a final and judicial decision upon the matter. The evidence is contradictory, and is open to the suspicion of bias upon both sides, but especially and notably upon that of the advocates of hypodermics.

(12) *In the presence of grave and imminently threatening visceral troubles it affords the readiest and surest way of producing a powerful influence.*—This may possibly be admitted, although in the great majority of cases there is ample time for the employment of inunctions.

(13) *In doubtful cases it shortens the time required for the "therapeutic diagnosis."*—This is scarcely to be included among the advantages belonging to a system intended for routine treatment. It is especially claimed for the hypodermatic use of calomel, and will be discussed in connection with that drug.

The objections to the method may be more briefly mentioned, and as I believe they are all well-founded.

(1) *It is painful, and in many patients excites apprehension, and is strongly objected to.*—It might be added that the measures advocated to obviate or lessen pain, viz., the precedent or simultaneous administration of morphia or cocaine, are in themselves highly objectionable and certainly to be discouraged.

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(2) *It is occasionally, though rarely, dangerous, and sometimes rapidly fatal.*—This is undoubted.

(3) *It is liable to be followed by certain local complications, which are: (a) erythema; (b) painful nodosities; (c) cellulitis; (d) abscess; (e) sloughing.*

While the percentage of these troubles is small in the reported cases, it must be remembered that the bulk of the enormous mass of literature referring to it which has accumulated during the last decade has been contributed by partisans. This prevents me from being much influenced by figures showing, for example, that "in 36,922 injections in 3185 patients, suppuration occurred in 116, or less than one-third of 1 per cent.[1]

(4) *It cannot be properly carried out by the patient, but always requires the intervention of the surgeon.*

In attempting to review the contributions to this department of syphilology I shall not attempt completeness, both because of lack of space and for the reason that so much that has been written is, if not stale and flat, certainly weary and unprofitable. I have, during the last five years, summarized much of it in the section on syphilis in the *Annual of the Universal Medical Sciences*, and would refer to those volumes and to Taylor's comprehensive resumé in his admirable essay in "Hare's System of Therapeutics," to which paper I must express my great indebtedness in the preparation of this article. I shall, however, describe the most important details of the method and its variations, and may then express my own conclusions as to its limitations, and the circumstances which indicate its employment.

The chief subdivisions of the hypodermatic method are based upon the solubility or insolubility of the mercurial preparations which are employed, the leading member of each group being respectively the corrosive chloride and the mild chloride.

The technique of their introduction is practically identical in both classes.

The solution or emulsion used should be sterilized. The skin of the region selected for the puncture should be cleansed with soap and water, then with alcohol or turpentine, then with a 1 to 40 carbolic solution and finally with a 1 to 1000 sublimate solution. The hands of the operator should be similarly prepared. The needle, which should be larger and longer than the ordinary hypodermatic needle, and the syringe itself, should be washed in 1 to 20 carbolic solution for at least fifteen minutes before using. Any form of syringe may be employed, the essentials being that it is capable of complete sterilization, works easily and smoothly, and holds the necessary quantity of

[1] Damman, Aust. Med. Journ., March 15, 1892.

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fluid. For some of the preparations employed a rubber syringe and a silver or gold needle are of advantage. For many of them the ordinary hypodermatic syringe with the larger needle will suffice.

Much has been written about the site of the injection and its depth. There seems reason to believe that the local influence of mercury is of great advantage, and the existence of a serious lesion at an accessible locality may occasionally determine the point of injection. Usually, however, the post-trochanteric region has been chosen as one which is not subject to pressure, or to the observation of others, and which is not especially sensitive. The statement has been made[1] that experience shows the thighs to be particularly liable to undergo suppuration and that they should, therefore, be avoided. The same advice is given as to the arms and forearms. The only *a priori* reason which occurs to me in explanation is that the constant use and motion of these parts may favor inflammatory changes. They would naturally be selected frequently, under ordinary circumstances, for hypodermatic medication, and the fact of their special susceptibility to abscess ought to be fully demonstrated before they are excluded from the list of available sites. The regions where the skin is closely applied to bones, those where cellular tissue is scanty, and those subjected to pressure in ordinary positions, should be carefully avoided, as should those in which suppuration or sloughing would be followed by noticeable disfigurement. As to the depth at which the injection should be deposited, the choice lies between the muscular tissues and the subcutaneous connective tissue. In my judgment the preference should undoubtedly be given the latter, as, if abscess occurs, it is much more easily managed than if it is subfascial.

The method of throwing in the fluid is identical with that of giving an ordinary hypodermatic injection. A fold of skin should be pinched up and the needle introduced parallel to its long axis and to the required depth. The point of puncture should be covered with the finger of the operator as the needle is withdrawn, and then with a little iodoform in collodion.

All these precautions cannot prevent occasional microbic infection from the deeper layers of the skin, and unless the fluid used happens in itself to be antiseptic this accident will be followed by cellulitis (streptococcus infection) or abscess (staphylococcus aureus or albus).

We may now consider the special substances used in the two great groups.

I. The Soluble Salts used Hypodermatically.

(*a*) *Corrosive sublimate.*—The subcutaneous use of sublimate in syphilis was introduced by Hunter in 1856; Hebra, in 1860, and

[1] Taylor, *op. cit.*

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Berkeley Hill, in 1856, followed, but it was the work of Lewin at the Charité in Berlin that brought it prominently before the profession. Since then it has been employed in thousands of cases, and by many hundreds of practitioners.

The dose is from $\frac{1}{12}$ to $\frac{1}{4}$ of a grain dissolved in about 20 drops of distilled water. It may be given in an average case every second or third day until stomatitis is threatened, and may then be used at longer intervals. If selected on account of some emergency, larger or more frequent doses may be employed.

(*b*) *Asparagin-Mercury.*—Neumann used this drug in thirty-seven cases.

Two and a half drachms of asparagin are dissolved in warm water, and oxide of mercury added to saturation. The solution is filtered after cooling, and the amount of mercury estimated. It is then diluted to make a 1 or 2 per cent. solution of mercury, as required.

(*c*) Another of the more recent preparations is the *succinimide of mercury*, which has been used by Jullien in a 5 per cent. aqueous solution, in doses of $\frac{1}{60}$ to $\frac{1}{20}$ of a grain.

(*d*) The *oxycyanide* has been used by Boer in 1 gramme (gr. 15), injections, containing 25 per cent. of the mercurial. He claims for it the advantages that it does not coagulate albumen; is neutral or of alkaline reaction; its solutions are stable; it is less poisonous and caustic than sublimate; it does not injure surgical instruments so quickly.

(*e*) *Mercuric albuminate* (Bamberger), an unstable compound of white of egg, sodium chloride and sublimate, of indefinite composition and liable to rapid deterioration, and *mercuric peptonate* (Martineau), a mixture with similar defects, had a short period of popularity, but soon fell into disuse. Allied preparations, such as the *blood serum mercury* (Bochhart), and the *hydrochloric glutenpeptone sublimate* (Hufler), are, as Taylor says, "polypharmaceutic refinements and therapeutic curiosities."

Staub's fluid and *Gaillard's mixture*, with a base of biniodide of mercury and sodium phosphate, may be included in the same category.

(*f*) The *iodo-tannate of mercury* (Nouny) may be used in the following formula:

℞. Hydrargyri .....gr. 1–16.
Iodini .....gr. 1–4.
Acid. tannic.....gr. 3–10.
Glycerinæ .....gtt. 15. M.

(*g*) *Carbolate of mercury* has been used in doses of $\frac{1}{6}$ to $\frac{1}{8}$ grain dissolved in 15 drops of water by various experimenters. Lexer's[1]

[1] Archiv. für Derm. und Syph., p. 715.

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studies of the comparative effects of inunctions and different drugs administered hypodermatically, showed the following proportion of relapses: Inunctions, 9 per cent.; sublimate, 13; salicylate, 15; formamide, peptonate and gray oil, 16; tannate, 18; carbolate, 27. I have but little faith in these or similar figures, but this would seem to show that the advantages anticipated by Gamberini[1] (who introduced the carbolate), from the combination of two germicides have not been realized.

(*h*) The *formamide of mercury*, in the daily dose of a Pravaz syringeful of a 1 per cent. solution, was introduced by Liebreich, and has been very extensively employed. Contradictory results have been reported, but the evidence goes to show that it is one of the most painful of the preparations used, and is not very stable.

(*i*) *Alaninate of mercury*, introduced by de Lucca, was said by him to be preferable to all other soluble mercurials for hypodermatic use, by reason of the smallness of the dose, and the rapidity and permanency of the action, but these assertions have not been confirmed by later investigators.

(*j*) The *benzoate of mercury* is preferred by Balzar and Thiroloix,[2] who say: "This salt coagulates albumen far less than other combinations of mercury, and hence it exercises a less energetic action upon the cutaneous nerve-filaments. It does not seem to cause gastro-intestinal complications or abscesses, and no case of gingivitis ever went on to marked salivation. The injections may be practiced in any part of the body, but are least painful in the back." The objections to the salt are that many injections are required, that it deteriorates on keeping, and that it sometimes causes induration at the point of application. Cochery[3] says that the fact that the benzoate does not coagulate albumen, is the explanation of its comparative painlessness. He found that this, like other preparations, is not well borne by very stout persons, the presence in the connective tissue spaces of masses of fat preventing the satisfactory diffusion of the remedy. The same observation has been made by others. Brousse, of Montpellier, prefers this salt to all the other soluble preparations.

II. The Insoluble Salts used Hypodermatically.

(*a*) *Calomel*, which may be taken as the type of the insoluble preparations, may be used in the dose of ½ to 1 grain every four days,

[1] Giornale del. mal. ven. e. del. Pelle, 1886, p. 241.

[2] La Med. Moderne, p. 47, Paris, January 9, 1890.

[3] Thése de Paris, 1890.

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2 grains weekly, or 3 grains every ten or twelve days. It may be given in one of the following mixtures:

℞. Hydrarg. chlorid. mit ..... gr. ss.
Glycerinæ purificat. ..... gtt. x.
Aquæ destillat. ..... gtt. x. M.

℞. Hydrarg. chlorid. mit. ..... gr. i.
Mucilag. acaciæ ..... gtt. xx. M.

℞. Hydrarg. chlorid. mit. .....
Sodii chloridi āā ..... gr. i.
Aquæ destillat. ..... gtt. xxx. M.

The calomel used should be sublimated by steam and perfectly sterile.

The method in use by Besnier at the Hospital Saint Louis may be given in detail: The formula used is calomel one part, oil of vaseline twenty parts. The calomel is incorporated with the petro-vaseline and well shaken, to put the insoluble substance in as perfect suspension as possible, and the mixture is then boiled a few seconds before making the injection, in order to sterilize it. The operator should wash the hands in a mixture of alcohol and liquor of Van Swieten, and cleanse the part where the injection is to be made with some absorbent cotton wet with the same solution. The needle of the syringe should be cleansed. The choice of location for making the injection is a point of the buttocks about three centimetres below the crest of the ilium, and an equal distance above and to the inner side of the great trochanter. The mass of muscles in this region is favorable for the injection, and they do not support the weight of the body in sitting. The skin is displaced somewhat, so that there is no direct continuation of the puncture of the integument and that of the deeper tissues. The insertion of the needle is done quickly at one stroke down to the guard. By operating in this way the patient scarcely feels its introduction. The injection is then made gently, but a certain force must be employed to secure the passage of the emulsion into the tissues.

The employment of calomel subcutaneously was originally advocated by Scarenzio in 1864, but was not very extensively used, except in Italy and Germany, until the writings of Smirnoff in 1883 and 1886 called renewed attention to it.

During the interval Sigmund was the most prominent syphilographer who carefully investigated the claims which were made for it, reaching the conclusion that we cannot hope to "cure" syphilis by a few injections of this or any other salt of mercury. Since then it has been used very largely, and its limits of usefulness, as well as its dangers, are now fairly well understood. We may consider the latter first.

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Locally, there is almost always pain of greater or less severity. This is denied by some of the advocates of the method, but I am convinced that not less than 90 per cent. of the patients who have undergone this treatment would testify to the contrary. I have not used it very extensively, but I have yet to see the first case in which marked pain was not excited by the injection, sometimes subsiding soon after, but oftener increasing and lasting for hours or even days. I have never used morphia or cocaine at the same time, and think the practice very objectionable.

There is almost always an inflammatory reaction which, when slightly developed, causes merely a flush around the needle puncture, and a feeling of heat or itching. Lesser has reported a case of extensive mercurial erythema. Oftener there is an exudation of lymph, with the formation of a hard, horny nodule, moderately tender to the touch, and very painful if subjected to continuous pressure. This is usually absorbed if asepsis has been good, but in a certain proportion of cases goes on to softening, to suppuration, and to the formation of an abscess. It rarely or never disappears under two weeks, often persists for a longer time, as has been shown by Balzer at autopsies, and its disintegration is sometimes attended with extensive sloughing and cellulitis.

Constitutionally, calomel injections have produced the following unfavorable results: Stomatitis, in spite of the assertions to the contrary, has not been infrequent, is often very persistent, and is sometimes of a very grave variety, attended with all the more dangerous phenomena of ptyalism. It is the more serious as it comes on suddenly (fulminating type), and is very rebellious to ordinary treatment. This intractability is probably due to the continuous absorption going on from the point of deposit of the drug, and has in more than one instance necessitated the excision of the indurated tissue thereabouts[1] and the cauterization of the walls of the resulting wound. Gastro-enteritis and colitis have occurred (Besnier), and have even been fatal (Kraus), and two cases of pneumonia following a calomel and oil injection have been reported (Klotz), and were presumably due to oil embolism.

On the other hand, the influence of the drug thus used upon the symptoms of syphilis in the secondary stage, and its occasional value as an adjuvant to the iodides in the treatment of later phenomena, when grave or dangerous, have been abundantly demonstrated. The most striking results have been obtained in specific eye troubles, but various forms of connective tissue lesions have been reported as rapidly cured by its use.

There can be no reason to doubt its efficacy, if properly adminis-

[1] Vogler has reported three such cases.

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tered, during the secondary stage of syphilis. Mercurialization, however produced, is then at its acme of usefulness. There is much more reason to question the reported benefits in all forms of tertiary syphilis. It is contrary to the accumulated experience of the profession to find in late syphilis that gummata, periosteal nodes, osteitis, tubercular syphilides and other phenomena of similar character yield promptly to the use of mercury alone. It is undoubtedly of value then as an adjuvant to or in conjunction with the iodides, but on both theoretical and clinical grounds cannot be expected to supersede them.

Smirnoff's reported cases require confirmation. Taylor acutely says: "Smirnoff significantly remarks that if, during a course of injections in tertiary syphilis, aggravation of the symptoms occurs, they should be stopped at once, and the iodide of potassium should be substituted."

One possible advantage of calomel may be properly mentioned here. Jullien[1] calls attention to its diagnostic value in doubtful surgical cases. He says: "The propriety of operating in certain cases is, in the experience of every surgeon, counteracted by uncertainty of diagnosis; an ulceration, a tumor of ambiguous identity, makes one suspect cancer, without casting aside all waverings toward the side of syphilis. The surgeon should, in such a case, institute a course of treatment to throw light as rapidly as possible on the obscure points." Under these condition, Jullien says he cannot too vehemently proclaim the superiority of calomel injections according to the Scarenzio Smirnoff method: 1½ grains (0.097 gramme) of calomel suspended in 15 grains (0.97 gramme) of liquid vaselin, thoroughly sterilized, and injected once into the gluteal muscles under aseptic conditions. He says no one can deny the profound modification which it exercises upon a syphilitic neoplasm, no matter what has been its duration. In five cases which he cites he determined whether a tumor was a manifestation of syphilis or not; in short, whether or not operation was indicated. He adds:

"Calomel by injection presents in the highest degree the qualifications of a test medicine." He thinks that no argument can be brought up in opposition, and that if the surgeon does not utilize this method, "it is not—it cannot be—that he condemns it, but that he is ignorant of it." It may be discarded in the methodic, prolonged treatment of syphilis, but all its inconveniences are obliterated by two indubitable facts, in the presence of doubts concerning a malignant degeneration, where "delays are dangerous." These two facts are: "(1) That a therapeutic diagnosis of syphilis is clearly defined in eight days by injection of calomel. (2) In case of negative results, this treatment has

[1] Le Bulletin Médical, June 19, 1892.

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not impeded the necessary operation in the slightest degree, and does not in the least complicate its results." However, even Jullien says that it must not be used blindly, and that it is best not to employ it in cases of marked albuminuria. If further experience confirms these observations, it will be one of the best practical results following the excessive (and unnecessary) use of hypodermatic treatment which has been the fashion for some years in certain parts of the Continent.

(*b*) *Metallic mercury* has been used by a number of observers with the usual claims of little pain, certainty of results, absence of relapses, etc. The dose employed has been from 5 to 20 or 30 grains once weekly, followed by kneading and rubbing of the region. Von During and Augagneur have each reported a case in which a tumor formed and was persistent, and the former had in one patient such severe toxic symptoms as to necessitate excision of the nodule at the point of injection.

(*c*) *Gray oil* (*Oleum cinerium*) is a form of metallic mercury which has been much more widely used. It was introduced seven years ago by Lang, of Vienna. It is prepared by making an ointment or pomade of mercury, with lanoline as a basis, and then diluting this with almond or olive oil (Lang), or by triturating metallic mercury with ethereal tincture of benzoin and oil of vaseline (Neisser), or by combining with the mercury and lanoline a 2 per cent. carbolized olive oil (Althaus).

However prepared, the aim is identical, *i.e.*, to secure a minute subdivision of the metal, and to obtain complete fluidity. The reported results are again contradictory. Lang warmly commends the method in a paper based on his experience for four years. Balzer and Reblaub[1] used the formula of Neisser (of Breslau); they accord to it some advantages and compare it with the yellow oxide (*q. v.*). But Hallopeau, Lindstrom and Kaposi have noted alarming cases of mercurial poisoning, which Lang attributes, however, to the improper use of the oil. Watrasewski has shown experimentally that subcutaneous injections of oil may give rise to fatty embolism (a case of Klotz's has already been mentioned, see p. 600) and Lesser reports another case, evidently of pulmonary embolism, from the use of an emulsion of tannate of mercury in olive oil.

(*d*) *The yellow oxide of mercury.*—Taylor says that this salt is to-day the most generally used hypodermatically of all the mercurial compounds, having largely replaced calomel. The evidence as to their comparative value is not so conflicting as usual. Hebra, in 1889, recommended it as the best of all the insoluble preparations. Huot[2] has compared them and thinks that while the calomel is the more

[1] Gaz. des Hôpitaux, July 9, 1882.

[2] Injections Mercurielles Massives, Thése de Montpellier, 1892.

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active it is also the more irritating; Kuhn[1] made the same comparison with the same result; Besnier gives similar testimony; Du Castel, who tried in a number of instances, in the same patients and at the same time, calomel and yellow oxide injected into corresponding parts of the body, says that the former is more irritating, but that he believes they are equally valuable as curative agents. Le Roy agrees with this latter observer. Sibilat says[2] that six injections of the yellow oxide correspond to four of calomel. The drug was introduced by Watrasewski, who gave up calomel on account of the pain and other unpleasant symptoms which it produces. His formula is:

℞. Hydrarg. oxid. flav. ..... gr. xv.
Acaciæ ..... gr. iv.
Aq. destillat. ..... f℥. ii M.

He uses a Pravaz syringeful, and says that three to six injections suffice for a "cure" which, Taylor says, "it must always be remembered means in the minds of most exploiters of hypodermic mercurial preparations in syphilis the disappearance of a given set of symptoms or lesions." The following remarks of Taylor throw such a strong side light on this whole question of the hypodermatic treatment of syphilis that I quote them fully:

"Tchernoguboff uses this preparation in doses of two grains every ten or eleven days, injected into the muscles. He says that syphilitic children from 12 to 14 years old tolerate one-grain doses hypodermatically very well, and are benefited. He thus treated 120 cases, male and female, young and old, without any untoward complications. It is interesting to remember that Lesser observed abdominal pains, vomiting and bloody and mucoid diarrhea after injections of yellow oxide, and never after calomel. The conclusion, therefore, is warranted that we can only get at the truth as regards the advantages and drawbacks peculiar to any and all preparations by a study of the experiences of many men. It is never well to rely fully upon the assertions of the exploiter of a new mercurial preparation or combination. Thus we find that Dampekoff used the yellow oxide upon 179 syphilitic women, and that 'neither intense pain nor suppuration was produced.' Yet these women absolutely refused to allow the continuation of the treatment by reason of the severity of the pain. Then, on the other hand, Reshetnikoff, in the course of 1800 injections of yellow oxide suspended in vaseline oil, made into the gluteal regions, never met with an instance of local suppuration, and only once saw a diffuse sanguinolent infiltration, which disappeared without any bad result."

[1] Deut. Med. Woch., 1888, p. 635.
[2] Gaz. des Hôpiteaux, July, 1892.

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Kaposi has reported a fatal case with stomatitis, diarrhea and albuminuria.

(*e*) *The neutral salicylate of mercury* was first introduced into the therapeutics of syphilis by Silva de Aranjo. Szadek first employed it in hypodermatic injections, using it in the following formula:

℞. Hydrarg. salicylat. ..... gr. iij.
Mucilag. gummi Arabici ..... mxv.
Aquæ destillat. ..... f℥ ij. M.

He gave injections at intervals of two or three days, affirming that they produced very little local manifestation. This is confirmed by many other writers.

(*f*) *Thymolate of mercury* has been used considerably in hypodermatic injections. Its inventor, Welander, uses grs. iss to 15 of liquid paraffin at four-day intervals, requiring about six injections to abolish symptoms. Migneco says of this salt that its use in eighteen cases gave better results than those obtained from bichloride, the effect being more rapid and the sequelæ returning less quickly. He used intra-muscular injections, one Pravaz syringeful of a 5 per cent. solution.

(*g*) The *black oxide*, *protiodide*, *red oxide*, *tannate*, *sulphate*, *turpeth mineral* and *cinnabar* have all been used and, without exception, the original experimenter has in each case found advantages possessed by no other preparation!!

This does not begin to complete the formidable list of therapeutic suggestions that have been made, and, unfortunately for the patients, acted upon during the last few years. It will suffice, however, to elucidate the present state of the question, and makes a basis for a reply to several important queries.

The most practical questions at issue at the present day are the following:

(1) Does hypodermatic medication in syphilis offer advantages which justify its adoption as a systematic method of treatment?

(2) Under what circumstances, or in what classes of cases, should it be employed?

(3) What are the indications for the selection of soluble or of insoluble salts?

(4) What are the particular drugs which are to be preferred?

(1) Even if it be contended that the question of the routine employment of hypodermatic medication in preference to other methods is still *sub judice*, it seems to me that there is little doubt that the evidence at present is overwhelmingly against it.

The positive objections to it I have already sufficiently considered.

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Marked pain, sensitive nodosities, cellulitis, sloughing and abscess, liability to disfiguring and permanent cicatrices, to a sudden and grave type of stomatitis, to violent entero-colitis, to pseudo-paralyses, albuminuria, pulmonary embolism, etc., even if they occur in but a small percentage of cases, make up a sufficiently formidable list of possible accidents to warrant a reasonable hesitation before giving up older and well-tried methods, practically free from danger, in favor of this one.

The objections to it by the patients themselves are a serious obstacle, in this country at least, to the practical success of the method. Even our hospital and dispensary cases are a much more independent class than the same sort of people abroad, and cannot be subjected to wholesale experimentation with the same impunity. In Paris, Fournier has called attention to the fact that syphilitics flocked from the hospitals where this method was being tried to his service. In private practice here it would certainly be difficult of adoption, and while it might be attended by the rapid disappearance of symptoms, there would often be an equally rapid disappearance of patients.

The figures which are gradually accumulating tend already to show that its employment, according to current formulæ, brings with it another danger, viz., that involved in the encouragement of insufficient treatment, in the dependence upon the short and heroic courses, which, as Hutchinson says, are often followed by the gravest and most serious tertiary phenomena.

The claim that by a few injections the time of treatment can be measured in months, or even in weeks, instead of in years, would seem, as Mauriac has said, to involve the idea that mercury given hypodermatically acquires some new and powerful curative property which given in other ways it does not possess. As a matter of fact when we inject the insoluble salts we are merely leaving the chemistry of their transformation into the soluble compounds to the tissues themselves; when we inject the latter we are simply reaching the general circulation by a somewhat more direct method than when we approach it through the capillaries and absorbents of the skin, or the gastro-intestinal tract.

I believe that, on the whole, while the final outcome of the experiences of the last few years will doubtless be for the advantage of science and the extension of our therapeutic methods, the information thus acquired will be at the expense of many patients who will suffer from the direct consequences of the method itself, or succumb to the ultimate developments of insufficiently treated syphilis.

[TO BE CONCLUDED.]

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NEURITIS AND MYELITIS, AND THE FORMS OF PARALYSIS AND PSEUDO-PARALYSIS FOLLOWING LABOR.

By Charles K. Mills, M.D.,

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[Concluded from page 522.]

Sacral and Sacro-Distal Neuritis without True Paralysis, Although Sometimes Accompanied by Partial or by Pseudo-Paralysis.

During labor, especially when prolonged, and sometimes even during the last stages of pregnancy, as the result of friction and pressure, a lumbo-sacral neuritis of varying intensity arises, and may continue for a longer or shorter time, according to the constitution of the patient, the state of the uterus and other pelvic organs, and the course which is pursued in the management of the patient. Some of the cases which are alluded to by Dr. Fullerton, as instances of short-lived partial paralysis, are doubtless of this class, as, for instance, the one of which brief notes have been given in the introductory portion of this paper. This woman suffered great pain in the groin and limb, and was unable to move the latter, and pressure on several nerve trunks caused much suffering. In three weeks, however, she was practically well, the pain and paresis having disappeared in ten days. Every general practitioner will have in mind some case of this character, which has recovered under rest, and which rest has been compelled by the patient's suffering as much as by the advice of the doctor; or has recovered without rest or treatment through the robust recuperative powers of the individual; but not a few patients of this class are practically neglected, all the conditions present not being fully recognized, and the treatment, as a rule, not being sufficiently painstaking and thorough.

Altogether similar in their symptomatology are some cases, which appear to have no immediate connection with the processes of pregnancy or labor, but are due to the irritation which is maintained by the nagging of an enlarged or displaced uterus, or by disease and enlargement of the ovaries and tubes, or by inflammatory processes in the pelvis, no matter how they may have originated. I wish, however,

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especially to direct attention to a set of cases which seem to date back to a particular labor, although they have evidently been aggravated and perhaps continued by conditions which may or may not be associated with the puerperium. I could give notes of many minor, although sufficiently troublesome, cases of this description, but I shall content myself with presenting the details of one case in which the symptoms were severe and striking. This history will be presented without special comments, as the details speak clearly for themselves.

CASE IV—*Sacral neuritis; pseudo-paralysis; anemia and neurasthenia.*—W., aged 33 years, had never been very strong, and when a child had been subject to precordial and other neuralgic attacks. Her mother had been subject to headaches and neuralgic attacks, and her only sister had had chorea when a child. Menstruation started when she was 12 years old, and had always been free, lasting usually from five to seven days. She was almost continuously pale and anemic-looking. She had had three children. Six years before coming under observation, while carrying her first child, she began to suffer with pain from the heel to the hip of the left leg; this never entirely left her, and with each child she had become worse. After the birth of the third child, about one year before she was first seen, it became more severe, and she was compelled to use crutches for a month, chiefly because of the suffering it caused her in attempting to walk. At frequent intervals, also, she had exacerbations of pain in the left leg, and paroxysms of pain in the back, usually compelling her to go to bed. Her suffering was so great, and at times the limb was so helpless, that she could not move it.

Careful examination showed great sensitiveness, particularly over the sciatic distribution, although not confined to it. The right lower extremity was also sensitive to pressure and handling, but not nearly to so marked a degree. Examinations were made both by the rectum and the vagina, and revealed extreme sensitiveness over the left sciatic plexus, less marked on the right side. The uterus was found to be prolapsed, enlarged, and completely retroverted, with pelvic exudations and adhesions. The os was patulous, and slight cervical and perineal lacerations were present. The ovary and tube on the left side were tender and somewhat enlarged; the same conditions, but much less in degree, were present on the right. The uterus and surrounding tissues were all extremely sensitive. In brief, the nerves and the other organs and tissues in the pelvic cavity were in an inflammatory state, much more decided on the left. Treatment was instituted with the threefold purpose of improving the general health, of relieving the neuritis, and of restoring the uterus and its appendages as nearly as possible to a healthy state. She was placed in bed with sand bags to her limbs;

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mercurial inunction, with atropine, were used twice daily; strychnine, salicin and iron were given internally, with at times other tonics and nutrients and anti-neuritic remedies; hot douches were used to the limb twice daily, and she was placed upon a nourishing and digestible diet. Phenacetin and sulphonal were occasionally used for pain and sleeplessness.

The gynecological treatment was carried out by Dr. M. I. Bassette. Douches of hot water with opium and glycerin were used nightly; every other dav for a time vaginal tampons, medicated with belladonna and boro-glyceride, and later with a 10 per cent. solution of ichthyol, were introduced. Gradually the exudate diminished, and the uterus became smaller and movable, when it was replaced daily, and the patient was made to assume the knee-chest position twice a day. The sensitiveness, both internal and external, steadily improved, and the attacks of paroxysmal pain become less and less frequent.

After six weeks of treatment a consultation was held with Dr. B. F. Baer. The uterus was still enlarged, with a tendency to retroversion, unless held in position with tampons. It was decided to curette with a view to decrease its size, and lessen the tendency to engorgement. After the operation the uterus was thoroughly washed out and injected with carbolic acid at intervals of a few days. She was also subsequently treated for three weeks with carbolic acid and iodine, at intervals of a few days. She was also given ergot and nux vomica, and under this treatment the uterus became smaller and less vascular, and remained in position longer without support.

After three months the patient returned home, the neuritis having disappeared, and the uterus and its appendages in such condition as to require only occasional treatment.

In all cases of this kind, and even in cases in which the symptoms are much less striking, careful examination should be made by the vagina and the rectum. The finger, guided by certain well-known landmarks, can reach some of the cords of the sacral plexus. Pressure upon, or even a gentle touch of the inflamed nerves will cause excruciating pain. Any nerve pressed or rolled on a hard substance like bone, will of course be a source of pain, but the suffering which is experienced in cases of true neuritis is of scarcely endurable character. With a little practice we become more and more skillful in reaching the nerves, and in distinguishing between the pain of inflammation and an ordinary hurt of the nerves.

The large nerve cords of the sacral plexus are not alone inflamed in these cases, but the inflammation may spread to the nerves distributed everywhere in the pelvis, and to the nervous plexus to the uterus, which, Rein[1] has shown, lies mainly in the cellular tissue

[1] Société de Biologie, quoted in American Journal of Obstetrics, vol. XVI, 1888.

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surrounding the vagina, at the point where the hypogastric plexus anastomoses with the filaments of the sacro-uterine nerves. All the fibres which go to the uterus, either from the hypogastric plexus or from the sacral nerves, pass through this plexus. This accounts for the extreme sensitiveness of such patients, even to careful vaginal examination.

One mode in which the post-puerperal paralysis may develop is through inflammatory processes originating anywhere or anyhow in the pelvis. Hünermann refers to this cause and cites a few cases. Intra-pelvic exudation may be of such size as to cause pressure, or the exudate may involve the lumbo-sacral cord or sacral nerves. To such cases I have also called attention in my former paper on sacral and lumbar lesions. Hünermann refers to three cases reported by Von Leyden, of severe sacral neuralgia, all having high fever. In one of these cases an autopsy was had and showed peritonitis, pleuritis and numerous thrombotic veins in the pelvis, one of which ran close to the sciatic, and was bound to it by infiltrations. Microscopic examination showed both peri-neuritis and neuritis. Von Dorion has described a case with abscess in the left pelvis and peroneal paralysis after labor.

Puerperal Neuritis Due to Septic or Other Infection.

In a third class of cases, puerperal neuritis, isolated, diffused, or multiple, and probably infectious in origin, is present. A few writers have reported cases of multiple neuritis shortly after normal labor. Auto-infection has been suggested as the best explanation. Some of these cases occur during pregnancy, thus indicating their non-traumatic origin. In some the neuritis and consequent paralysis has been in part or chiefly in the upper extremities, as in cases reported by Möbius and Kast. The symptoms present need not be detailed: they are in brief those of neuritis, local, diffused or multiple; pain, hyperesthesia, paresthesia, paralysis or pseudo-paralysis; sometimes anesthesia; often changes of the reflexes; cramps and contractures, and occasional atrophies and reactions of degeneration. Usually these cases occur in the first, second or third weeks after labor, but they may follow immediately or at a later period than three weeks. Theoretically no good reason exists why, as the result of infection either from without, or perhaps from within, any form of puerperal neuritis may not occur, and it is of some practical importance to separate traumatic cases from those which have a septic or infectious etiology.

Möbius[1] has reported the case of a woman, aged 29 years, who, two days after arising from bed, and three weeks after the birth of her child, had a sense of painful cramp in the left calf, which kept her in

[1] Möbius: Münchener medicin. Wochenschr., 1892, No. 45, p. 799.

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bed for three weeks, at the end of which time some enfeeblement of movement of the forearms manifested itself. A few days later there was complaint of pain in the scapular regions, which lasted for a week. Then, in the ninth week, peculiar sensations in the right forearm were perceived; and the act of writing could not be performed, because the thumb failed to firmly grasp the pen. The flexor longus pollicis was wasted and presented reactions of degeneration. Electrical treatment was followed by little improvement. In a second case a woman, 55 years old, complained of pain at the right elbow, which readily yielded to ordinary measures. Examination, however, disclosed the fact that atrophy of the ulnar and thenar muscles had been present for thirteen years, first showing itself shortly after labor. Motility was not materially impaired, and electric reactions were presented. Both cases were considered to be instances of neuritis of puerperal origin. Möbius[1] also records the case of a patient who had had perfectly normal labor; the puerperium was free from fever. She first complained of pain and paresthesia in the upper extremities, with diminution of motor power; two weeks later the same symptoms were present in the legs, no anesthesia, reflexes normal, as were also the responses of the muscles to mechanical irritation; the muscles were somewhat atrophied in the upper extremities, but not in the lower. Recovery occurred under treatment by iodide of potassium. Later she had a mild form of neurasthenia, but without any of the above symptoms of neuritis, except tenderness on pressure over the brachial plexus. Möbius considers the initial localization of the illness as characteristic, for in the later course all forms of neuritis may become general and give us the same picture.

Handford,[2] in a brief communication on the puerperium as a factor in the origin of multiple neuritis, has reported three interesting cases. Two of these bear out his diagnosis of multiple neuritis. In both, alcohol was a predisposing factor. As the notes of these cases are brief I will give them.

K. M., aged 43 years, married seven years, three children; has always been a stout, florid, healthy woman. Her husband kept a public house, but evidence of drinking habits in the patient could not be obtained. Three days after her confinement she lost power in the legs, and at the same time felt strange sensations like pins and needles in the arms. This was soon followed by paralysis. She had been able to walk about up to the date of her confinement. The general course and character of the paralysis was typical of an alcoholic multiple neuritis. There was loss of muscular sense, impaired cutaneous sensi-

[1] Referred to by Hünermann. Abstracted in Journal of Mental and Nervous Diseases, January, 1891, Vol. XVI, No. 1, p. 45.

[2] Handford, British Medical Journal, November 28, 1891, Vol. II, p. 1144.

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bility, but greatly increased deep sensibility, great muscular wasting, loss of knee-jerks, and the presence of the reactions of degeneration in the muscles of the legs and arms. The condition of the eyes was normal. She was able to walk a little in six months, and in twelve months was comparatively well.

The second case was a stout, well-nourished woman, aged 34 years, also the wife of a public-house keeper. She suffered with complete paralysis of the extensors of the toes and the flexors of the ankle, with weakness of most of the other muscles of the leg, coming on immediately after confinement. The ankle-joints were habitually extended and the toes pointed. There was much hyperesthesia, but superficial and deep, and a little edematous swelling. No contraction could be elicited in the muscles below the knee by as strong a faradic current as the patient could bear. A voltaic current from twenty-six cells, registering thirty milliampères, caused much pain and some contraction of the rectus femoris, deficient in quantity and normal in quality. No response could be obtained from the muscles below the knee. Some weeks later considerable muscular wasting was present, extending as high as the right gluteal muscles. In six months she could walk without a stick, and eventually recovered, except that the affected muscles remained rather stiff.

In a system predisposed by the effects of previous disease or excesses, and reduced by the exhaustion, excitement and strain of labor, septic or other infection attacks the nerve centres or fibres, and as a result, according to the degree and extent of the onslaught, neuritis with or without palsy, or myelitis, or intracranial inflammations with convulsions, or psychical affections, or other brain symptoms, may occur.

A woman, recently a patient at the Polyclinic, a few days after labor, and after an effort to stop the flow of milk, was attacked for the first time with frontal headache, which has persisted with a few intervals of relief for twelve years, during which time she has passed through five other labors, losing two of the children in early infancy. This ache, probably initiated by a mild infectious neuritis, has never left her.

Recently, in the post-mortem room of the Philadelphia Hospital, I was present at an autopsy on a patient from the wards of Dr. E. P. Davis, this case illustrating the other extreme. This woman, three hours before she was brought to the hospital by the police patrol, had been delivered of a child without proper attention, and with wretched surroundings. She was suffering with hemorrhage until after admission to the hospital, and was in a state of acute mania. In addition, her limbs, particularly the upper ones, were extremely hyperesthetic.

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Her head was drawn backward somewhat to one side, and active contractures were present in the upper limbs, and possibly also in the lower, but these were not closely examined. She had a scattered petechial eruption. She died about thirty-six hours after admission. The symptoms were such as to suggest cerebro-spinal meningitis. The autopsy showed clearly that no meningitis was present. Sections of the brain and cord showed them to be blanched and dry. Doubtless this was a case of profound toxemia, asssociated with anemia caused by the great loss of blood. The patient's blood was in the puerperal condition, the surroundings of her labor were depressing, and she was of the class of those who so often suffer from the ravages of alcoholism or syphilis.

Neuritis and Paresis Associated with Phlegmasia Alba Dolens.

Neuritis, and the partial paralyses of phlebitis, and phlegmasia alba dolens, can be conveniently discussed as a separate class, although perhaps they might be included under other heads given.

Patients suffering from phlegmasia alba dolens are, of course, more or less helpless and paretic during the progress of the affection; but, in addition, it sometimes leaves forms of paralysis and pseudo-paralysis. Doubtless a true neuritis is often present in phlegmasia, either as a result of the spread of inflammation by contiguity, or because of pressure and interference with the nerve trunks. A form of atheromatous neuritis is now recognized, and has been described by Gowers as a variety of the senile form of multiple neuritis; and it is held that in this disease the nerves of the limbs have been extensively damaged through the obliterating arteritis, necrotic inflammatory processes going on in the parts of the nerves supplied by the affected vessels, either arteries or veins. These processes may or may not result in occlusions, and are frequently accompanied by a true neuritis, which is the origin of most of the pain. In phlegmasia, likewise, a true neuritis may set up; and this may in part persist after other symptoms and conditions have subsided, or nerve degeneration may take place as the result of the neuritis, or of the pressure exercised on the nerves by the swollen and indurated tissues. Even the gangrene, in which phlegmasia sometimes terminates, has been regarded as in part at least neuro-trophic rather than altogether due to interference with the circulation. Finally, a patient suffering from phlegmasia may at the same time, or as a sequel of the affection, develop a septic, pyemic, or infectious myelitis of the transverse or some other variety, which will give rise to marked and, it may be, incurable paraplegia. Winckel quotes

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Mauriceau, Boer, Casper and Gittermann as reporting a greater or less degree of paralysis of the affected limb as left over by phlegmasia. Dr. Anna M. Fullerton has furnished me with some notes of several cases of this character, patients who have been confined at their homes without proper antiseptic surroundings and attendants, and have come to the hospital for treatment. She believes that inflammatory and septic complications are responsible for this class of cases; in them she has found extensive lesions, often of the soft parts, due to injuries occurring during birth, which have left open surfaces for the absorption of the poison. The following are notes from cases furnished by Dr. Fullerton:

CASE V—*Pyemia, phlebitis, anesthesia and pseudo-paralysis.*—A. H., married, aged 27 years, pelvis generally contracted, was delivered of her second child six weeks before admission to the Woman's Hospital. The labor was said to have been easy. The condition of the patient during her pregnancy had been poor. The drainage of the house and the vicinity was poor, and she thought she had chronic malaria. She had suffered some time previous to her marriage with uterine trouble, and during her pregnancy had been under the constant care of physicians to ward off threatened abortion. Her second labor was followed by an attack of sepsis. When able to be moved she was brought to the hospital. Upon examination an abscess was found over the right sacro-sciatic foramen, and a bedsore on the buttock of the same side. A left crural phlebitis existed, with stiffness of the knee, and an edematous and anesthetic condition of the leg. The uterus was enlarged and tender, and found imbedded in a mass of pelvic exudate. She was placed upon supporting treatment. The limb was first treated by elevation and application of belladonna and iodine ointment. The pelvic condition was treated by douches and hot packs. The abscesses were evacuated and washed out with antiseptic solutions. Later the limb was treated with massage and electricity. She returned to her home much better six weeks after admission. She was able to walk, but the limb was still weak and continues so up to the present time, January, 1893. The pelvic exudate has been absorbed. The uterus is movable, but a left salpingitis exists with distention of the tube, for which laparotomy has been advised.

CASE VI—*Phlegmasia and neuritis.*—D. R., single, aged 22 years, was confined in the Woman's Homeopathic Hospital early in October, 1892, with her first child. Labor was said to have been long, but not instrumental, and was followed by phlegmasia dolens affecting both limbs, the left being first affected, and greatly swollen. She was admitted to the Woman's Hospital January 8, 1893, for severe pain in

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the foot, affecting especially the great toe and the two next to it, and extending into the ball of the foot; some pain was in the entire limb, with imperfect use of it. She had enlarged inguinal, axillary and cervical glands; she was and still is pale and anemic, remaining under treatment, which has been supporting, with elevation and rest of the limb, and application of belladonna ointment. Considerable improvement has taken place in two weeks. Pelvic examination showed a laceration of the cervix, extending to the vault of the left side of the uterus, which is movable and larger than usual.

CASE VII—*Pyemia with anchylosis, atrophy and pseudo-paralysis.*—M. T., aged 27 years, married, entered the hospital October 30, 1891, threatened with premature labor at seven months. It was discovered that she had made attempts to induce labor for some time by means of vaginal injections. Her general condition on admission was very poor; she was pale, anemic and apparently half-starved, with albumin in the urine. Notwithstanding the efforts made to arrest the threatened miscarriage, labor occurred on November 5, being preceded by a chill and rise in temperature. After the delivery her condition remained fair up to about the eleventh day, when again there was a chill and rise in temperature. She had complained of some pain in the right limb since delivery. A synovitis of the right knee, with considerable swelling and complaint of pain and stiffness in the limb, developed. Later, suppuration of the knee occurred, necessitating evacuation and drainage. Other metastatic abscesses occurred. The knee became anchylosed; the muscles of the limb wasted greatly. After a long course of supporting treatment, with massage and electricity applied to the limb, she recovered so she was able to walk without pain, but with a slight limp. She was discharged March 21, 1892.

CASE VIII—*Pyemia with paralysis, atrophy and anesthesia.*—M. F., aged 26 years, married, flat pelvis, was confined to her home with her first child. The labor was long and difficult, requiring instrumental delivery. The child was still-born. There was extensive lacerations of the soft parts. The patient was kept to her bed for sixteen weeks with septic fever. The physician who attended her spoke of the position as having been a posterior variety of the occiput. The patient was admitted to the Woman's Hospital February 1, 1890, with the left limb paralyzed, wasting of the muscles and some loss of sensation. Pelvic examination showed the existence of bilateral laceration of the cervix uteri to the vaginal vault. The pelvis was filled with an inflammatory exudate, fixing the uterus, which was large and tender. She was placed under treatment, with douches and hot packs for the pelvic condition, and daily faradization of the paralyzed limb, with general restorative treatment. She was discharged March 16, greatly improved,

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but with locomotion still imperfect. She returned to the hospital September 22, 1891, for second delivery, although she had been advised, in a similar condition, to have premature labor induced. The os was found to be fully dilated; the fetal head showed no attempt at fixation. Version was performed, and delivery was effected without any injury to the mother. The fetus was born in the second stage of asphyxia, and could not be resuscitated. The puerperium was perfectly normal. The patient had entirely recovered from her paralysis.

PUERPERAL MYELITIS DUE TO SEPTIC OR OTHER INFECTION.

No reason exists why myelitis, or even meningitis or cerebritis, as well as neuritis, may not occur as a result of infection during the puerperium. My own notes only include one case of myelitis. In this case the occurrence of two attacks at intervals of several years, and evidently myelitic in character, is interesting in connection not only with the history of alcoholism, but also with the view that disseminated myelitic foci, in the great majority of cases, are septic and infectious. The following are the notes of this case:

CASE IX — *Transverse myelitis with persistent paraplegia; four years later, bulbar myelitis; history of alcoholism.*—H. L., aged 41 years, white, a patient in the nervous wards of the Philadelphia Hospital, was married when twenty-two years of age and had seven children. One of her sisters died of phthisis. She denied specific history, but admitted using alcohol to excess. Her menstruation had been painful up to her last labor, and since then had not occurred. At the time of, or just after her first labor, nearly five years before the time she was studied, she became paralyzed in both legs, but suffered no pain. From this time, also, she was unable to see distinctly as before, and she thinks that her eyeballs began to be a little more prominent. Her condition remained without much change for nearly four years. In a short time she was able to sit up, but never, since the attack, has she been able to walk. A few months since, while sitting in her chair, her speech suddenly became thick, and she lost power in both arms, the paralysis of her legs, which had improved somewhat, at the same time becoming worse.

At present she is unable to stand; she can flex and extend her legs in a feeble manner while sitting or lying down, but has no control over the movements of her feet. Her legs are lean, but not atrophied. Her arms have nearly regained their usual power. She has no loss or perversion of sensation, although she says that at one time her limbs were completely anesthetic. No pain or hyperesthesia is present. Bladder and bowels are not paralyzed. Toe-jerk, ankle clonus, front tap, with exaggerated knee-jerks and muscle-jerks, are all present. In short,

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the paralysis and other phenomena in the lower limbs are such as we would expect from a transverse lesion of the dorsal cord. As results of her last attack, lips and tongue are paretic, she has slight palatal paralysis, and is unable to phonate well. She also, apparently, has some exophthalmus, which she believes has been present several years.

The best explanation of this case would seem to be that by infection, or in some unknown way, an attack of myelitis was set up during or after labor, this spending its chief force upon the dorsal cord, although at first, as in other cases, the whole or a large portion of the cord may have been involved in the inflammation. Her recent attack was probably pathologically of a similar character—a central bulbar myelitis. The alcoholic history is of interest, as chronic alcoholism, like syphilis or tuberculosis, would predispose a puerperal woman to such an attack. Neuritis, either diffused or multiple, was not present. The blindness of one eye and the protrusion of the eyeballs may be explained on the theory of the occurrence of foci of inflammation in some of the centres at the base of the brain, or in the ganglia of the sympathetic.

Handford, in the paper cited, reports a third case of which he expresses doubt as to its neuritic character, or at least of its being one of simple neuritis. Its onset after confinement, however, was clear, and the case has some symptoms pointing toward neuritis. The following are Handford's notes:

"In this case the diagnosis is difficult, but it lies between tabes dorsalis, sclerosis with patches in the crura and in the lumbar enlargement of the cord, and multiple neuritis. There certainly is ataxy; but against the affection being tabes are the facts that she has never suffered from lightning pains or gastric crises; the pupils are dilated, there is no atrophy of the optic disc; the arms were affected as early and as severely as the legs; there is distinct loss of power, and now distinct muscular wasting. There was no evidence of syphilis, and her children are very healthy looking. E. S., aged 31 years; married six years, three children. She suckled the last a year and a half. Difficulty in walking and a weakness in the arms came on after her confinement, two years ago. In the house she used to have to assist herself by the furniture, and in the street walk along by the wall. On admission, in July, 1888, she could not stand, and could only feed herself with one hand, with a spoon. The legs were very feeble, and occasionally jumped and became drawn up without the patient's knowledge. The knee-jerks were totally absent, as were also all the superficial reflexes. Cutaneous sensibility was much diminished in the arms and legs. There was double ptosis and divergent strabismus, with widely dilated pupils, moving to neither light nor accommodation—a complete paralysis of both nerves. Sight was good in each eye, and the discs were

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normal. There was incoördination and loss of muscular sense. She soon went home, and I have been able to keep her under observation up to March, 1891. The duration of the illness is, therefore, five years. There is no appreciable alteration, except that the voluntary movements of the arms are more irregular, and the left is much weaker than the right. There is no rigidity of the legs. The thighs are well nourished, but there is considerable wasting of the muscles below the knee on the left side. She cannot stand, but spends her time entirely in bed, eats, sleeps well, and is free from pain."

A close reading of this case would seem to indicate that in all probability the patient suffered from a form of diffused myelitis, the inflammation attacking, beside the cord proper, the basal nuclei. The active sensory symptoms of neuritis were absent in the case, although diminished sensibility was present.

To hysterical and reflex paralyses I shall only refer, as the chief purpose of the paper is to direct attention to the organic forms of post-puerperal affections, peripheral and spinal. Any form of hysterical paralysis may occur, in one predisposed, under any sufficient exciting cause, and certainly pregnancy or the puerperium is sufficient for the production of any functional nervous affection. A few cases with hemi-anesthesia, evidently hysterical, have been put on record as occurring during gestation or in the puerperal period, as, for instance, by Churchill,[1] who is quoted by Lloyd.

The reflex theory has been used for these as for other cases to escape difficulties which the industry or the ability of the physician has not been able to overcome. Instead of paralysis being due to some vague form of reflex action dependent upon an abnormal excitement exhausting the spinal centres, it is more reasonable to assume that, at least, in not a few of these cases, actual transmission of the inflammatory process by ascent to the cord occurs; or that a septic or infectious agent in the blood poisons the centres and nerve tracts, and gives rise to a true toxic palsy; although in extreme instances a puerperal excitement may be so sudden and so great as to overwhelm the centres to which it is transmitted, and to produce by exhaustion temporary paralysis. Cazeaux and Tarnier quote Jaccoud in explanation of the reflex origin of the paralysis of gestation and childbed as of other paralyses. Many such paralyses are said to be occasioned by exhaustion of the nerve centres. A long-continued excitement transmitted to the spinal cord by the uterine nerves, exhausts the excitability of the spinal centres, and these exhausted centres are no longer able to transmit the motor impulses to the brain, hence paralysis results.

As many of the cases are of septic or infectious origin, and as this

[1] Churchill: Dublin Quart. Journ. Med. Sci., Vol. XVII, and *op. cit.*

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infection may in some instances be introduced from without, the importance of extreme cleanliness and antiseptic measures is emphasized by these as well as by other accidents and consequences of labor. Occasionally, as in times of epidemics, influences from without, and not in any way connected with the labor, may be efficient to cause a multiple neuritis or myelitis, and these cannot be guarded against, except by attention to the general health of the patient.

In treatment, as well as in diagnosis, it is of the utmost importance to consider the neuritis, intra-pelvic or extra-pelvic, which is present in these cases. When sure that neuritis is present, even if it is only of a moderate degree, but particularly when severe, the patient should be kept in bed, or, if on her feet, should be put back to bed. Rest alone will do much for these cases. Even where a persistent and perhaps permanent peroneal paralysis has been left, it is not necessary that the patient should suffer indefinitely with nerve inflammation, and the degree of improvement of the paralysis which will take place cannot be determined until the neuritis has been subdued; nor can thorough local treatment with electricity, massage, and Swedish movements be carried out while the limb is in a painful state. In cases of the second class which have been here discussed—those of neuritis with pseudo-palsy and affections of the intra-pelvic viscera—treatment of the neuritis by rest and other measures should go hand-in-hand with the gynecological and general measures. These patients will not be firm on their limbs as long as their pelvic nerves are in an inflamed condition, and as long as these inflamed nerves are nagged and worried by exudates or by enlarged and displaced organs.

By means of sand-bags between, and to each side of the legs and to the feet, the limbs may be kept in a state of quietude as nearly absolute as is possible. Hot douches, or douches of hot and cold water rapidly alternated, can be applied for a few minutes at a time, twice or three times daily. If necessary, opiates may be used, but when possible they should be avoided. Even in the absence of syphilitic history, I commonly resort to inunctions of mercury until a slight constitutional effect is produced. A good ointment is one containing a mixture of mercurial ointment and lanolin, to which a measured amount of sulphate of atropine can be added. An ounce of the ointment may be divided into thirty-two parts, so that each part will contain about $\frac{1}{160}$ to $\frac{1}{180}$ of a grain of atropine; then each of these parts of ointment can be wrapped in paraffine paper, and one to four can be used daily. A good time to use the inunction is immediately after the douches. Between the times of these applications it is desirable, if possible, to keep the limbs in a mild perspiration, which may be accomplished with strips of rubber dam, such as is used by dentists and sur-

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geons; wrapping the limbs loosely with strips or layers of this fastened with tapes.

Internally, in the acute and subacute stages, salicylate of sodium, salicin or salol, in full or fair doses, will sometimes be found very efficient; and phenacetin or antipyrin can sometimes be advantageously combined with these remedies. When the affection has become more chronic, iodide of sodium or potassium, or hydriodic acid, can be added, or can be substituted for the earlier treatment.

It may be necessary to use moderate doses of tonics, such as strychnine or quinine, from the first. Weak galvanic currents can be used before the pain has entirely left, as can also massage and Swedish movements; but the active electrical and manipulative treatment is rather for the paralysis which results from the nerve-crushing and neuritis than for the neuritis itself. Appropriate gynecological treatment should be thoroughly pursued.

MEMORANDUM.

CONVULSIONS IN CHILDREN DUE TO TONSILLITIS.

On January 25, I was hurriedly called to see Harry S., a child aged 18 months. The child was just recovering consciousness and quiet after a violent fit of convulsions during which he, according to the account of the bystanders, "stiffened out all over," frothed at the mouth, worked his hands and feet, and exhibited violent twitching movements of the face and eyes.

I found the rectal temperature to be 104° F. On further examination, I discovered the cause of this pyrexia. A follicular tonsillitis showing grayish mucoid protrusions from the pits of hypertrophied tonsils was the only diseased condition discoverable.

One week thereafter I was called with great urgency to see a child, aged 6 years, which was said to be choking to death. I found it just recovering from an unusually severe attack of convulsions. The rectal temperature was here 104⅖° F.; the little one had mitral valvular disease in a very pronounced form, but there was no evidence of any cause of acute pyrexia except a well-marked follicular tonsillitis. Just two days afterward a third case almost entirely similar to the first presented itself.

The treatment of these three cases was identical and proved quickly curative.

Phenacetine in 2–4 grain-doses every four hours reduced the fever, while tinct. of iron and chlorate of potash was given internally. In a few days the tonsils were restored to their usual condition.

M. J. DONAHUE.

WATERBURY, CONNECTICUT.

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CLINICAL DEPARTMENT.

NOTES FROM TEN YEARS' SERVICE (1881–1891) (4131 CASES) AT THE PHILADELPHIA DISPENSARY FOR SKIN DISEASES.

ECZEMA.

The cases of this disease numbered 1394, or a proportion of 30 per cent. Of these 772 were males and 622 were females. Season had apparently the influence usually accredited to it; thus, in the half years between January and July, in which the weather is usually the coldest, the most windy and changeable, 836 cases were met with, against 558 in the seasons between July and January. The frequency, as related to age, corroborated what is well known, the disease being common in infancy and early childhood, becoming less so until the age of active working life is reached, when it again shows a marked increase. This is shown in the following table:

Under 5 years	203 cases.	Between 30 and 40 years	230 cases.
Between 5 and 10 "	74 "	" 40 " 50 "	204 "
" 10 " 15 "	55 "	" 50 " 60 "	172 "
" 15 " 20 "	82 "	Over 60 "	108 "
" 20 " 30 "	235 "	Age not recorded	31 "

In many patients the eruption was of a mixed character, showing an intermingling of several varieties of the primary and secondary lesions; in most cases, however, the disease was either characterized by a uniformity or by a marked predominance of one kind of lesion. These latter cases were therefore classed in the record according to the prevailing type of lesion, with the following results:

E. erythematosum	228 cases.	E. vesiculosum	127 cases.
" fissum	40 "	" vesico-papulosum	127 "
" papulosum	171 "	" verrucosum	3 "
" pustulosum	116 "	" of mixed type	106 "
" rubrum	185 "	Type not recorded (but presumably mixed)	121 "
" squamosum	170 "		

The face was the common site for the erythematous type, the hands for the fissured form, the legs for eczema rubrum, the neighborhood of the ankles for the verrucous, and the scalp or parts of the head for the pustular; in the other types there was decidedly less predilection shown, or not sufficiently so to deserve particular remark. The part of the body most frequently the site of the disease, without regard to type, was the face, the legs coming next in order of frequency, and the hands following, as here shown:

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Face	195 cases.	Face and hands	21 cases.
Legs	194 "	Ears	20 "
Hands (palms alone, 16)	189 "	Neck	18 "
Scalp	97 "	Hands and feet	10 "
Scalp and face	62 "	Lips	9 "
Genitalia	61 "	Anus	6 "
Arms	43 "	Nares	4 "
Hands and forearms	39 "	Buttocks	4 "
Trunk	36 "	Several or more regions	222 "
Arms and legs	32 "	Site not recorded	105 "
Feet	27 "		

In many of the hand cases occupation was a potent factor; in others it was difficult to point to any external agency as a possible exciting cause. The most common predisposing causes, which, indeed, in some cases seemed to be the active exciting factor or factors, lay in the digestive tract, consisting of errors of digestion or assimilation, or both. A family history of gout or rheumatism was often obtainable. In many cases, too, it was clearly evident that the causative element was a temporary or permanent nervous or physical breakdown. That in a proportion of the cases the disease was due, in part, at least, to reflex influence, as, for instance, in the teething in infants, etc., was scarcely to be doubted.

In the treatment of the disease several factors had to be considered, such as the circumstances of the patient, the location of the disease, the ability to carry out certain lines of medication, and occupation. Expensive methods, it need scarcely be said, were impracticable. It may be remarked here that in no single instance was the palliation or cure of the disease followed by any other result than that of great relief; this would ordinarily not have been worth stating, but recently there has been a tendency in certain quarters to ascribe dire results, in some instances, to the cure of the skin ailment. In the treatment various new therapeutic agents were tried from time to time, but very few proved worthy of a permanent place. Resorcin, ichthyol, thymol, β-naphthol, aristol, and some of the manufactured plasters and lanolin, may be mentioned as among the more recent drugs or preparations as being of proved value.

The character of the external treatment was based, irrespective of the duration of the disease, upon the degree of inflammatory action. In those cases in which the disease was acute, or of an acute type, boric acid lotion, with a supplementary mild ointment, played an important rôle; the same may be said, less emphatically, however, of lotio nigra, and the supplementary use of an ointment; of a calamine and oxide of zinc lotion; of a weak thymol lotion, one-fourth to one grain to the ounce; of resorcin lotion, one-half to five grains to the ounce; of a

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compound ointment of calamine—calamine one drachm, salicylic acid ten grains, starch one drachm, with equal parts of zinc ointment and vaselin to make up the ounce. Lassar's salicylic acid paste was also frequently used with benefit. In some long-continued cases of a mildly acute type, and in those of a subacute type, stronger lotions of resorcin; of thymol; liquor carbonis detergens, with several or more parts water; white precipitate ointment, five to thirty grains to the ounce; calomel ointment, five to thirty grains to the ounce; an ointment of tar and zinc—a drachm of tar ointment, or a half to one drachm of oil of cade to the ounce of zinc ointment; salol ointment, five to twenty grains to the ounce; ichthyol washes and ointment, 2 to 10 per cent. strength; were variously used. In chronic sluggish cases pure tar ointment; naphthol ointment, twenty to sixty grains to the ounce; calomel or white precipitate ointments, forty to one hundred grains to the ounce; pyrogallic acid ointment, five to sixty grains to the ounce; chrysarobin ointment or plaster, 1 to 6 per cent. strength; were among the most valuable remedies. In stubborn, thickened patches, and in cases of eczema rubrum of the leg, in which there was marked infiltration, Hebra's method of shampooing with sapo viridis, supplemented immediately with a mild ointment applied as a plaster, should not be forgotten. Some of the manufactured plasters of tar, salicylic acid and other stimulating drugs were found useful in a limited number of cases of chronic thickened scaly or verrucous patches.

The constitutional treatment prescribed rested entirely upon a study of the predisposing conditions and of the individual patient's needs. The experience of this dispensary, like that of others, has failed to find any constitutional remedy having a specific value. Arsenic, when prescribed, was usually given in small doses, and for its tonic and alterative effect, and not with the belief that it had in itself, except in rare cases, any specific influence over the disease. There were especially two lines of constitutional treatment which were most frequently prescribed and to which recovery could often be clearly traced: one consisting of salines, mild laxatives, mild alkalies, such as sodium bicarbonate and sodium salicylate, salol, the vegetable bitters and digestives; the other of small tonic alterative doses of arsenic, strychnia, quinia, iron and the nutritive tonics. Of the nutritive tonics cod-liver oil is deserving of special mention.

PSORIASIS.

Of this disease 155 cases, or a proportion of 3.7 per cent. were recorded. The sexes were about evenly divided, seventy-five males and eighty females. Forty-three patients were of foreign birth. The earliest age at which the disease had appeared was between 2 and 3,[1]

[1] See case reported in the Medical Times, April 23, 1881.

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and the oldest patient presenting the eruption for the first time was aged 60. The disease was by far most commonly seen in those between the ages of 20 and 40; only ten patients were seen over the age of 50, and in almost all these the disease had long existed, or there had been previous attacks. The following table shows the ages of patients:

Under	5	years	4 cases	Between	35 and 40	years	18 cases
Between	5 and 10	"	12 "	"	40 " 45	"	9 "
"	10 " 15	"	12 "	"	45 " 50	"	4 "
"	15 " 20	"	17 "	"	50 " 55	"	6 "
"	20 " 25	"	27 "	"	55 " 60	"	1 "
"	25 " 30	"	19 "	Over	60	"	3 "
"	30 " 35	"	20 "				

Season had, as is commonly known, an influence, but not so strikingly, judging from these cases, as generally assumed; forty-six patients applied in the months of January to April, forty between April and July, thirty-one between July and October, and thirty-eight between October and January. As to the forms of the eruption, the ordinary type, consisting of variously sized patches, chiefly dime- to dollar-sized, was usually met with; but in ten cases the patches remained small, being for the most part small pea-sized—psoriasis guttata; in five cases the patches were mostly circinate; and in five the eruption was more or less diffused.

In nineteen cases the scalp exhibited the disease, in nine of which the eruption was limited to this region; in the other ten the eruption was upon other parts as well, either to a slight or great extent. In one case the disease was limited to the scalp, finger ends and finger-nails. In twelve cases the disease was confined to the extensor surfaces of the elbows and knees; in twenty-five other cases these parts shared in the general eruption, being to a greater or less extent invaded; but in the remaining cases, by far the greater number, no special predilection was shown for these regions. In forty of the patients it was the first attack; in the remaining number, 115, advice was sought for a recurrence, or for a long-existing eruption. In one patient, a woman aged 32, in whom the disease had existed off and on for some years, it always reappeared while nursing a child. In two instances two cases in the same family were recorded; in one a father and son, and in the other a mother and daughter. As to etiology, nothing new was learned; heredity was often a factor, and in some cases debilitating influences; in others there appeared to be a relationship to the gouty and rheumatic diatheses. As a rule, however, the patients were seemingly in good general health.

The treatment usually prescribed was both constitutional and local.

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For the former the chief remedies were arsenic, liquor potassæ, potassium iodide, potassium acetate, tar and oil of copaiba; and in certain cases tonics, especially cod-liver oil. The most valuable of these were arsenic and liquor potassæ, the latter being particularly so in the markedly inflammatory type occurring in robust patients. Arsenic was an exceedingly useful remedy in first attacks and in patients in whom the disease had been of long duration, but who had never been systematically treated; in recurrences and in patients who had previously taken the drug freely it was without much, if any, value. In the external treatment, plain or alkaline baths, chrysarobin, pyrogallic acid, tar, β-naphthol, aristol and white precipitate were variously employed.

In certain cases of mild type of eruption, even though more or less extensive, a daily alkaline bath, followed by a tolerably vigorous application of a salicylated ointment (ten to thirty grains to the ounce), often sufficed to remove the disease.

Chrysarobin was used either as an ointment or collodion paint, 5 to 20 per cent. strength; pyrogallic acid, as an ointment or paint, 5 to 10 per cent. strength; tar, either as the officinal tar ointment, full strength or weakened, or as an oil, for this latter purpose using the oil of cade, either pure or with one or two parts of alcohol; β-naphthol, as an ointment, twenty to sixty grains to the ounce; aristol, as an ointment, 5 to 15 per cent. strength; and white precipitate, as an ointment, forty to one hundred grains to the ounce. In the experience of this dispensary tar was the most generally applicable and useful external remedy; chrysarobin was valuable and often rapidly curative, but it has certain known disadvantages which make it an unsafe remedy for general use in this class of patients.

Sifting the evidence made by the use of these various local remedies, it may be said that those giving the best results were tar, chrysarobin and white precipitate; β-naphthol and aristol, while useful in some cases, did not compare in value to the others named.

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EDITORIAL.

THE HYPODERMATIC TREATMENT OF SYPHILIS.

WHILE it is true that physicians are guided in their treatment of disease by the sole consideration of utility, still evidence of the attraction which novelty presents is occasionally manifested in medical practice. Syphilis has probably existed from the remotest antiquity, and the frequency of its occurrence has given opportunities for the widest clinical observations. Although the treatment of this disease has in the main been most satisfactory, as far as removing symptoms is concerned, and, indeed, in effecting a cure when the medication has been intelligent and persevered in for a sufficient length of time, and although in mercury we possess, if not a specific, a remedy which most closely approximates this ideal, still when a new treatment is exploited a responsive chord is found here and there, and we soon read of numerous advantages to be derived from the innovation suggested. More than thirty-five years ago hypodermatic medication in syphilis was claimed to have distinct advantages over the older methods of administration. Since this time this plan of treatment has been used to a limited extent, with the result that those with the largest experience have either abandoned it entirely, or they reserve it for a few selected cases.

In another department of the MAGAZINE will be found a careful and comprehensive discussion of the value of the hypodermatic method of treatment in syphilis. In addition to the author's vast personal clinical experience, he records the opinions of the most advanced syphilologists of this country in an attempt to determine the exact status of this method among those having the largest experience and, therefore, most capable of judging. Occasional reports are met with, which strongly endorse the extravagant claims of those who advocate this treatment. The advantages urged are numerous, and are fully considered in the article before referred to. Not the least remarkable of these is the claim that a few injections suffice to effect a cure in syphilis in the course of a few weeks or months, and that relapses are much less common after this treatment. It might be admitted that by subcutaneous injection it is possible to secure a somewhat more prompt effect, but we are not aware that it has ever been claimed that remedies so administered act any differently than when introduced into the body through one of the other avenues, except in the case of the use of mercury in syphilis. To admit this proposition one would be compelled

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to assume, as Taylor suggests, that mercury administered in this way acquires some new and occult property not manifested in the usual methods in which the drug is employed. Such an assumption is not only unreasonable, but is not borne out by the results of actual experience. Opposed to those who advocate this treatment is its almost unanimous rejection by all the leading syphilographers, as expressed in the letters which will appear in the conclusion of Dr. White's paper, in the next issue of the MAGAZINE.

It may be safely claimed, therefore, that as far as this country is concerned, the hypodermatic method has not supplanted the older and more useful methods of inunction and mouth administration; and further its employment is not sanctioned by those who are recognized as our foremost syphilologists. It is true that in very exceptional cases, owing to irritability of the stomach, or to extensive cutaneous disease, the hypodermatic administration is the only means by which the patient can be brought rapidly under the influence of mercury. In such cases this method of treatment fulfils a useful purpose, and finds, as we believe, its only excuse for existence.

ARE ASYLUM PHYSICIANS PARTY PENSIONERS?

UNDER this title, the *American Journal of Insanity* comments editorially on a custom, which although gradually being stamped out, still exists to a degree that certainly calls for further reform. The fact is so familiar, and the pernicious effects of such a policy so plain, that we need not argue the question.

In this matter the judgment of physicians as to the qualifications of those to be appointed as medical officers in asylums is so infinitely superior to the custom of political dispensation, that the former should determine the appointments. To secure this end, each should take a personal interest in the institutions in his vicinity, and vigorously oppose appointments which will not be for the benefit of the unfortunate people whose interests are so seriously concerned.

The public, as well as the profession, should be made to realize that those into whose care the unfortunate insane are placed, should be men of lofty character, as well as professional ability. A special training is really required for this work, and the positions should not be subject to change with a change in political power. The editorial above alluded to was called forth by the political dependence of those holding positions in the Illinois hospitals for the insane. We are glad to note great advances in this direction in many States in the last few years, and great obligations are due to those who have labored unselfishly to secure this end.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

The Treatment of Asiatic Cholera.

The *Lancet* (February 4, 1893) contains an article from Surgeon-Lieutenant-Colonel Duke, of Bengal, in which he advocates the following treatment for cholera: A pill, containing two grains of calomel and half a grain of the extract cannabis indica is administered every two hours for three doses. If the pill is vomited, pure calomel is placed upon the tongue. In the case of adults, five minims of liquor strychnine (B. P.) with five minims of water was injected hypodermically, and repeated four or five times in twenty-four hours. The success of the treatment was shown by the return of the pulse, often in twelve hours. During the second day, three injections of strychnine were used. To promote the urinary secretions, one-eighth of a grain of pilocarpine is used hypodermically. To check hiccough, nausea and sickness, five grains of antipyrine acted wonderfully. Mustard plasters are used over the stomach and limbs. Fluids were freely allowed. If severe cramps are an urgent symptom, the calomel was used as directed, and twelve grains of chloral hydrate were injected hypodermically, six grains into each limb, with the best results, the strychnine being used, after an interval. The writer has found the above treatment the best after twenty years experience.

Heart Disease from Gonorrhea.

Heis (*Berliner klinische Wochenschrift*, No. 4, 1892) reports the following case: A young man, aged nineteen, had an acute gonorrhea lasting three weeks, from which he, apparently, entirely recovered. He caught a severe cold and was seized with a severe chill. At the same time a slight discharge from the urethra reappeared. Some days later a punctate, red rash appeared on face, arms and hands. No disease was then discovered in the heart. On admission to the hospital, the whole body, except the soles of the feet and palms of the hands, and hairy scalp, were covered with a rash which was hemorrhagic in character. The heart was much dilated; there was a systolic murmur at the apex of the heart. The patient died on the twenty-fifth day of the disease. At the post-mortem there were found, among the other lesions, ulcerative endocarditis of the aortic valve, and purulent, softened thrombosis of the apex of the heart. There were numerous thromboses of the veins of the pubic plexus (plexus pubiscus). In this case there was a thrombosis of the veins of the prostate and plexus pubiscus, which gave rise to a pyemia, which localized itself in the aortic valves. Only one other case of endo-

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carditis, following gonorrhea, has been observed in that hospital. This case was in a man twenty-two years old, who had a gonorrhea of three weeks' duration, soon followed by pain and swelling of the shoulders, hands and feet. After these points improved, the patient had a severe chill. A heart murmur developed with dilatation of the ventricle. At the post-mortem there was found ulceration of the aortic valve, with numerous spots of myocarditis. There was obstructive endarteritis of the coronary arteries.

Scarlet Fever in Adults.

Gimmel (*Deutsches Archiv. für klinische Medicin*, Vol. LI, Part 1) reports 1818 cases of scarlet fever which occurred in Zurich in eight years; 274 of these cases were in adults, or 15.8-100 per cent. of the whole number. He concludes his article as follows: (1) Adults are somewhat less disposed to scarlet fever than children. (2) The longer the time which has elapsed without an epidemic of scarlet fever, the greater the number of adults seized in the epidemic when it occurs. (3) The course is less severe in adults than in children. (4) Nephritis is less common in adults than in children, and is not so severe. (5) Articular rheumatism is a more frequent complication in adults than in children. (6) Scarlet fever, conveyed by wounds, occurred in the observer's cases only in adults.

Acute Abdominal Symptoms Demanding Operation.

Richardson (*Boston Medical and Surgical Journal*, January 19, 1893) believes if operations were more frequently done on account of the symptoms instead of waiting to make a diagnosis, the mortality of acute cases would be much less. To wait for a possible diagnosis is often to insure death after the operation. Pain is the most important symptom; if it is sudden, persistent, severe, if general at first and soon localized, if it alarms the patient; and, finally, if it is accompanied by vomiting, there is good reason for anxiety. The pain is not that of an intestinal cramp, it is not that of a colic with diarrhea, and when accompanied by vomiting or shock or other serious symptoms, exploration is not only justifiable, but imperative.

The Relation of Emphysema and Pulmonary Tuberculosis.

Potain (*Revue de Thérapeutique Médico-Chirurgicale*, January 15, 1893) believes the cases can be divided into three classes. In the first the emphysema is primary, and the pulmonary tuberculosis is secondary. In the second the pulmonary tuberculosis is primary, and the emphysema is secondary. In the third the two diseases may develop at the same time. In the first case the bronchitis develops as it ordinarily does when a sudden hemoptysis occurs. The development of secondary tuberculosis is rare. When the emphysema is secondary, it may be generalized if there is a general miliary tuberculosis. If the tuberculosis is localized, the emphysema is produced about the seat of the affected spot. In most of the cases the two affections are evolved at the same time. If the tuberculosis is acute, the emphysema is not hindered by the primary disease, and it aggravates the disease by the dyspnea which it produces. If the tuberculosis is chronic the emphysema appears to rather retard its development, probably because the activity of the pulmonary circulation is opposed to the development of tuberculosis.

The emphysema obscures the diagnosis of tuberculosis by the resonance which

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it causes. In cases of general emphysema the treatment should be addressed to that condition rather than to the tuberculosis. Turpentine, creasote, tar and sulphur waters should be prescribed, and the treatment need not be changed when the patient has tuberculosis.

Creasote Treatment of Phthisis.

Albu (*Münchner medicinische Wochenschrift*, December 6, 1892) has used creasote in large doses. The patients took thirty grains daily. One patient took as much as 6500 grains during the time of observation. He believes creasote to affect only the symptoms of the disease—for some it is a good expectorant, for others a good stomachic. On the whole, it is a good tonic. Recovery did not take place in a single case. He believes creasote to have no specific action upon the process. In the discussion of Albu's paper, Fürbürger states that he has not used creasote for the past two years, because the effects were not satisfactory. In half of the cases in which it had been used it had no effect either favorable or otherwise. In about one-fourth of the cases it had a deleterious effect; it disagreed with the stomach. The remaining fourth of cases he had treated improved to a certain extent, but the improvement was not greater than in cases under good hygiene without creasote.

Chronic Chorea.

Osler (*The Journal of Nervous and Mental Diseases*, February, 1893) provisionally divides cases of chronic chorea into four groups: First group, chorea of infants appearing either at birth or within the first two or three years of life. A majority of these cases are examples really of spastic diplegia, plus movements which may be choreiform, tremulous or athetoid, or there may be combinations of mobile spasm with more rapid movements. Second group, comprising cases of chronic chorea without any hereditary *anlage*. Third group, including cases of marked heredity, characterized by the occurrence in family groups; a late onset of psychical disturbance, and a progressive fatal course. The disease may begin at any age. Fourth group, comprising cases of chorea minor, which pursue a chronic course, and persist for months, and even for years, and ultimately recover. They differ from the other groups in the absence of a progressive character, the more bizarre movements and the retention of the mental faculty.

He believes the malady is distinct from the various disorders associated with coarse lesions of the motor centres. An affection which may occur in families, or in single individuals, and is characterized by irregular, incoördinate movements, a reeling gait, speech disturbances and progressive impairments of the mental faculties. The movements differ from those of chorea minor, being slower and resembling rather those of Friedrich's ataxia, without the jerky movements of the former disease. Sometimes the movements are influenced by the will. He concludes: "Chronic progressive chorea is, I believe, a disease wholly apart from the affection described by Sydenham, having nothing in common with it but the name. The course of acute chorea minor, the incidence in children, the arthritis, the seasonal relations, the extraordinary frequency of endocarditis, to say nothing of the different characters of the movements above referred to, separate it as a well-defined affection, depending possibly upon a virus as yet unknown."

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Mankoff's Sign for the Diagnosis of Pain.

The *Lyon Medicale*, February 12, 1893, contains an abstract which describes the above sign as an acceleration of the pulse under the influence of real pain. M. Strauss verified the exactness of this sign in sciatica, phthisis, rheumatism and periostitis, and controlled his observations by means of the sphygmograph. He concludes that while the sign is not invariable it will frequently serve to detect the malingerer.

Heart Failure.

Loomis (*International Medical Magazine*, February, 1893) divides all cases of heart failure into three classes: (1) Those in which the heart has for a long time been called upon to perform an abnormal amount of work, as in valvular or arterial disease. (2) Those in which obstructive changes in the coronary arteries markedly diminish the nutritive supply of the cardiac muscle. (3) Those in which toxic influences act directly upon the nutrition of the cardiac muscles, or so interfere with the cardiac nerve supply as to lessen cardiac resistance. The cases in the first class are the most numerous and easily recognized. The other organs than the heart should be carefully examined for morbid changes, and the resisting power of the heart carefully estimated. In this manner a fatal heart syncope may often be prevented by limiting the amount of heart strain. The second class of cases, fibroid disease of the heart, may be recognized by a feeble, rapid and irregular pulse, a diffuse, feeble cardiac impulse, weak but sharp heart sounds, the first closely resembling the second in tone and duration. Advanced cases have precordial anguish with a tendency to syncope. Digitalis and other heart tonics fail to restore the rythm and often make it worse. In these cases the danger of sudden cardiac failure is so great that all acute diseases become dangerous, and severe heart strain is contraindicated. In cases of toxic infection signs of heart weakness should be watched for, and alcohol, strychnine and other heart tonics administered early, in order to ward off, if possible, a fatal syncope.

SURGERY

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Operation for Renal Calculus in a Horseshoe Kidney.

In the *Deutsche medicinische Wochenschrift*, January 19, 1893, p. 62, Schuchardt reports the case of a man, aged 61 years, who had suffered from bladder trouble for eight years. Cystitis was marked, and there was a stone in the bladder. A large phosphatic calculus was removed by the median operation, and an examination of the right kidney, while the patient was under narcosis, revealed the presence of a stone also in it. Improvement took place for a while, but the patient again became worse, and the right kidney was operated on by an incision in the

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loin, and a stone removed from it. To facilitate the examination of the organ, its capsule was loosened. The wound was tamponed, and in a few days secondary sutures inserted. Healing progressed satisfactorily in fourteen days, leaving no fistula. The vesical catarrh, however, still persisted, and another small stone was removed from the bladder by dilating the perineal opening. The patient soon afterward died of pneumonia. On autopsy the left kidney was found to contain in its pelvis a large stone, and the lower border of the organ was found to be united to the kidney of the opposite side, forming the well-known horseshoe kidney. The difficulties that would have been encountered had excision been attempted in a case of this kind are evident.

Gonococcus Metastasis.

Horwitz, in the *Wiener klinische Wochenschrift*, January 26, 1893, reviews the question of the metastatic action of the gonococcus of Neisser, and gives a case of his own. Certain authors, as Haab, Gerhardt, Loeb, Weichselbaum, etc., hold that the complications which arise in gonorrhea are due to a mixed infection by other pathogenic microbes. Others, Pellizari, Kipp, Raynaud, Van den Velden, Wille, Despagnet, Fränkel and Deutschmann, claim that they originate from the gonococcus of Neisser, which has been carried direct to the newly-infected part by the blood current. Still others, as Guyon and Janet, argue that the troubles arise from some noxious substance produced by the gonococci. The affections are widespread, affecting the joints, serous sacs, tendinous sheaths, bursæ, endocardium, etc. Guyon and Janet, in three cases of gonorrheal arthritis, were unable to demonstrate the presence of any micro-organisms whatever, either microscopically or by culture. Smirnoff, Sonnenburg, Bockhardt, Ceppi, Sahli and Deutschmann, all have found the gonococcus present in purulent collections following gonorrhea. The author's case was one of a man, aged 27 years, who had suffered from gonorrhea for one year. He became affected with an abscess on the back of the hand, the pus of which showed the gonococcus of Neisser plainly, both in the cultures and microscopically. The pus came from an inflammatory infiltrate of the tendon of the middle finger.

Osteoplastic Closure of Defects in the Skull.

Tietze, in the *Archiv. für klinische Chirurgie*, Band 45, Sect. 227, gives a description of several operations in which König's method of osteoplastic closure was employed to replace bony defects. The principal case was that of a woman in whom a large part of the right half of the frontal bone was removed for a carcinomatous growth. In this case the dura mater was found implicated, and likewise was removed. To close the opening a flap was taken from above, which included, besides the soft parts, a thin layer of bone. This flap was turned downward and laid in the opening, the bone on its under surface coming directly into contact with the pia mater. The transplanted tissues healed in kindly, and the granulating surface above was afterward treated by Thiersch's transplantation method. Two other cases of bone transplantation, one for a defect of the frontal bone, caused by an injury, and operated on three and a half years later, and another, of a defect in the tibia, are also detailed. The author refers to the original article of Wagner, in the *Centralblatt für Chirurgie*, 1889, No. 47. Also to those of König, in the same journal, 1890, Nos. 4 and 27, and that of Schönborn, and that of Wolff in the report of the Surgical Congress of 1891.

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An Improved Technique in the Operation of Exteral Perineal Urethrotomy.

In the *New York Medical Journal*, January 21, 1893, Fluhrer describes his method of performing the operation of external perineal urethrotomy. When a filiform bougie can be introduced through the stricture he passes over it a urethrotome resembling that of Teevan, and divides all strictures anterior to the perineum. The urethrotome being withdrawn, a Gouley tunnelled staff is passed over the guide and, when the stricture is reached, it is reversed so that its beak projects toward the surface of the perineum; on it a small incision is made into the urethra. A thread is then attached to each side of the urethral opening to act as retractors, and the portion of the guide in the penile urethra withdrawn through the opening. A small hook is next fitted into the extremity of the staff, and it is used to draw upward the incision in the urethra. By this means and the two threads the urethra is fully exposed. The urethrotome being threaded again on the guide is introduced into the bladder and the stricture cut on the floor. Further incisions may be made on a director introduced into the bladder through the wound. If the stricture is impermeable, then endeavor to feel the urethra behind, and cut forward or open at the apex of the prostate after the method of Cock.

Bone Suturing without Perforation of the Bone.

Dollinger, in the *Centrabllatt für Chirurgie*, January 14, 1893, gives the following method of uniting the ends of a divided bone in ununited fracture. He employed it with success in two cases. Two silver wires were laid lengthwise on the sides of the bones to be united, and bound fast with a wire going circularly around them. The projecting wires were then turned down toward each other and tied, thus drawing the divided ends of the bone together. The union in one of the cases was complete in eight weeks.

The Management of Suppuration Complicating Tuberculous Disease of the Bones and Joints.

In the *Medical and Surgical Reporter*, February 18, 1893, Gibney gives the following summary of his method of treating suppurative troubles affecting the bones and joints:

(1) Protect the joint about which the bone lesion exists in the early stage and in the later stage, whether the abscess is let alone, aspirated or incised.

(2) In cases where the suppurative process is confined to a small area, it is good surgery to leave the small abscesses alone if the protective appliance is adequate.

(3) It is good practice to aspirate where the abscess is in the way of the proper adjustment of apparatus, and by such procedure one may expect good results in at least 50 per cent. of the cases aspirated.

(4) The simple incision of an abscess dependent upon bone disease depends for good result upon the extent of the bone lesion.

(5) Excision of the hip is not a measure to be employed in all cases where extensive suppuration exists, but must depend largely upon the condition of the patient and the location and extent of the abscesses.

(6) Expectant treatment for the knee and ankle joint in children yields the best results for life and limb.

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(7) Amputation of the ankle in a child is rarely ever justifiable, except when amyloid disease of the liver or kidneys threatens or is present; of a hip after a thorough excision has failed.

(8) The long-continued employment of a good-fitting splint to the back in Potts' disease of the spine will yield better results than any operative procedures on the bone with which I am familiar.

BLOODLESS AMPUTATION AT THE HIP JOINT BY A NEW METHOD.

SENN, in the *Chicago Clinical Review*, February, 1893, describes his method of amputation at the hip joint. Dr. A. B. Keyes devised the method of controlling bleeding in this operation by first disarticulating the head of the femur and then constricting the soft parts by means of a bandage made of several layers of gauze tightly twisted with a stick; the flaps were then cut. Senn has modified this procedure, and submits the following technique:

(1) Preliminary dislocation of the head of the femur and clearing of the shaft of all soft tissues down to the proposed line of amputation, through an external straight incision, as it requires less time and is attended by less hemorrhage and shock than when this part of the operation is done after circular amputation, as advised by von Esmarch and others.

(2) The external straight incision is the same as von Langenbeck's incision for resection of the hip joint, differing only in length.

(3) After dislocation of the femur the soft tissues are tunneled with a hemostatic forceps, which is entered through the external wound on a level with the trochanter minor to a point on the inner aspect of the thigh behind the adductor muscles and about two inches below the ramus of the ischium, where a counter opening two inches in length is made.

(4) A bloodless condition of the limb should be secured by elastic compression or vertical position prior to tying the elastic constrictors.

(5) An elastic tube, three-quarters of an inch in diameter and about four feet in length, is grasped with the forceps in the centre and drawn through the tunnel made by the forceps.

(6) After dividing the elastic tube in the centre, the base of the thigh is constricted by drawing firmly and tying the anterior constrictor in front of the anterior section, while the two ends of the posterior constrictor, after being drawn tight behind the posterior section, are crossed and then made to encircle the whole thigh, when the ends are again drawn firm and tied or otherwise secured above the anterior constrictor.

(7) A long and a short oval cutaneous flap should invariably be made in all amputations at the hip joint.

(8) In preference a long anterior and a short posterior flap should be selected.

(9) The transverse section through the muscles should be somewhat conical in shape, the apex of the cone corresponding to the tunnel made by enucleation of the upper portion of the shaft of the femur.

(10) Resection of the end of the sciatic nerve and ligation of all the vessels that can be found should be done before the removal of the constrictors.

(11) The femoral arteries should be secured by a double catgut ligature half an inch apart, the one on the proximal side including also the accompanying vein.

(12) The posterior constrictor should be removed first, and all hemorrhage arrested by ligation and compression before the anterior constrictor is removed.

(13) The upper part of the wound corresponding to the acetabulum should be drained with an iodoform gauze tampon, and the remaining part of the wound by one or more tubular drains.

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Fracture of the Skull—Conclusions Drawn from Three Hundred Cases.

Mumford, in the *Boston Medical and Surgical Journal*, February 9, 1893, gives the result of his investigations of 300 cases of fracture of the skull. The mortality was found to be higher than usually estimated, being 56.6 per cent. There were 165 fractures of the vault and 138 of the base or base and vault combined. Fractures from *blows* on the head are usually recovered from, while 50 per cent. of those caused by *falls* are fatal and 74 per cent. of those which he calls *railway fractures*. Of 90 cases of these latter 67 were fatal. Trephining was done sixty-two times with 28 deaths, a mortality of 45 per cent. It seems that the most important factor in brain lacerations is the subsequent hemorrhage rather than the damage to the brain itself. A case of Homans and Walton is cited in which a subdural clot without the presence of fracture was demonstrated. The author was unable to see that the fact of reaction or non-reaction of the pupils had any special bearing on the prognosis. There were 90 cases with coma, stertor, slow pulse and unequal or dilated pupils, and 87, or 96 per cent., died. On the 3 that recovered the trephine was used when the condition seemed hopeless. Of 9 gunshot cases 7 died, three from sepsis and four from hemorrhage. Of 135 cases of fracture of the base 108, or 80 per cent., died. In fractures of the vault the mortality was only 37.5 per cent. Ecchymosis in the mastoid region, appearing usually in two to five days after the injury, is pointed out as a symptom of fracture of the occipital region. In fractures of the base with hemorrhage from the ear one-third of the cases recover.

A New Appliance for Fractured Clavicle.

In the *Journal of the American Medical Association* for December 24, 1892, will be found a description of an apparatus for fracture of the clavicle, devised by Jesse Hawes. It consists of three pieces: a wire trough for the arm, a wire shoulder shield and a clavicle depressor. The wire trough is padded with cotton, and the forearm of the injured side laid therein. The shoulder shield is laid on the sound shoulder. The hand extremity of the trough is fastened to the outer extremity of the shoulder shield, while the elbow end is supported by a strap of webbing passing over the opposite shoulder. The elbow is grasped and the shoulder pushed upward and backward and retained in this position by the strap. The clavicle depressor, only necessary in certain cases, consists of a piece of sheet iron an inch wide and six inches long, bent inward a little above its centre. This is padded and fastened over the clavicle, its long axis being transverse to the bone. It is retained in place by rubber plaster and elastic webbing. By use of this apparatus the author states that the ordinary adult shoulder can be carried upward and retained permanently and comfortably at an elevation of from one and a half to two and a half inches above its ordinary position.

Maydl's Method of Tamponing the Larynx.

Eisenmenger (*Wiener medicinische Wochenschrift*, No. 5, 1893) describes the use of tampons to prevent the entrance of blood into the air passages. The apparatus consists of a Schroeter's hard rubber bougie for the larynx and two balloons. The introduction of the apparatus is easy. When the balloon is filled with air it spreads out directly below the vocal cords, and is thus prevented from slipping out. Through the centre of the tube runs a canal which ends in a button-like projection through which the patient breathes.

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OPERATION FOR A CASE OF LARGE CIRSOID ANEURISM; CURE.

KOTSCHAU (*Deutsche medicinische Wochenschrift*, February 9, 1893,) reports the following case: A woman, aged 40, when a child of 7 years fell out of a wagon and struck the side of her head. Two years later a small tumor about the size of a silver quarter made its appearance in the spot that was injured. The tumor continued to grow. Between the sixteenth and seventeenth years, regularly every month, the patient lost considerable blood from the tumor, which extended completely over the parietal bone, and then over the forehead and right eye and back as far as the occiput. The patient suffered greatly from vertigo, and often became completely unconscious. In the treatment of the case compression had been of little value, and the various injections recommended were thought to be too dangerous. The patient desiring an operation, a deep ligature was passed almost entirely around the tumor. There was, however, such furious bleeding from the needle punctures that the ligature had to be removed. The following day the patient lost nearly two litres of blood from one of the small needle punctures. The opening was closed by a ligature and the bleeding ceased. The extirpation was again attempted, this time the mass being removed and the bleeding controlled by manual compression. The sac was packed with iodoform gauze and allowed to granulate. A small arterial loop was left at the lower angle of the wound from which there was considerable hemorrhage on the fourteenth day. This was rapidly removed and the wound closed with sutures. The entire wound closed completely by granulation and the patient entirely recovered.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

THYMACETINE.

Thymacetine is a white crystalline powder derived from thymol. It has been employed in doses of five to fifteen grains as an analgesic and hypnotic.

E. MARANDON DE MONTYEL (*Bull. Gén. de Thérap.*, January 30, 1893) draws the following conclusions from his studies of the drug in small doses: (1) The drug had no effect on sensation, sleep, intellect, vaso-motor system, genitals and intestines. (2) It had no influence on the general reflexes, but it occasionally caused double dilatation of the pupils, without loss of vision, which lasted for half an hour. (3) In some cases it caused unsteadiness and symptoms resembling intoxication. (4) The muscular force, as determined by the dynamometer, was increased. (5) In three-fourths of the cases it caused slight headache, lasting several hours. (6) It always caused a rise of temperature, about 1° C., which lasted two or three hours. (7) It accelerated the respirations, but did not disturb their rhythm. (8) It increased the arterial tension and pulse rate, but did not cause palpitation. (9) It generally induced considerable lassitude, which often lasted more than a day. (10) It sometimes caused slight urethro-vesical spasm, temporary dysuria or retention, or a sensation of burning during micturition. (11) The ingestion of the drug caused a sense of heat in the epigastrium which

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sometimes spread over the entire body. Thirst, anorexia, nausea, vomiting and gastric catarrh were observed in some cases. (12) Paretic dements, in whom the drug has been especially employed, seem less susceptible to its action.

Salicylates in the Treatment of Pleural Effusions.

Dr. George Dock (*Therapeutic Gazette*, February 15, 1893) reviews the history of this subject, and draws the following conclusions:

(1) Salicylic acid and its salts are among the most effectual agents in the treatment of pleurisy with effusion.

(2) In effective doses the remedy is harmless, and with proper care in the selection of the preparation and its administration causes little or no discomfort to the patient.

(3) Salicylates act most promptly in pleurisies with serous effusion of recent origin or of long standing, but they are efficient in simple dry pleurisy, and often act favorably in secondary pleurisy.

(4) There is no evidence that they are useful in suppurative cases.

(5) The drug acts as a diuretic, but may have an effect on the pathological process, or on the cause of the disease.

(6) Salicylates have a more marked action on pleurisy than have the diuretics commonly so-called.

(7) The duration of treatment with salicylic preparations is less than with diuretics, common salt, or roborant medication.

(8) The remedy can be used at the earliest period, and favorably affects all symptoms.

(9) The drug may be given in the form of the acid or any of its salts, in doses of a drachm of the former, or one to two drachms of a salt daily. In ordinary cases it is not necessary to give the large doses, and sixty to ninety grains of sodium salicylate or of salol may be considered full beginning doses, to be diminished one-third or one-half if the effect is manifest.

(10) The ordinary precautions must be observed in giving the drugs, and during their administration the total amount of urine should be measured daily.

Borate of Soda in Paralysis Agitans.

Sacaze (*La Semaine Méd.*, 1893, No. 4) has employed this remedy with excellent results in a case of paralysis agitans. The patient was a man, aged 38, in whom the symptoms had followed an injury of the shoulder. Electricity, the actual cautery, iodides and suspension had been employed without success. At first, the borate of soda was given in doses of four grains three times a day; later, fifteen grains, thrice daily. Improvement was noted at the end of the first week, and this was soon followed by a disappearance of all the symptoms.

Belladonna in Incarcerated Hernia.

V. B. Zagorsky (*Meditzinskoïe Obozrenië*, No. 23, 1892) reports five cases of incarcerated hernia—four inguinal and one umbilical—in which, after taxis had failed, extract of belladonna, in doses of one-fourth grain every hour, was followed by spontaneous reduction. The result was attributed to the anti-spasmodic property of the drug.

Treatment of Angina Pectoris.

Huchard (*Revue gén. de Clin. et de Therap.*, 1892, No. 39) reviews the treatment of angina pectoris, and concludes as follows: Digitalis raises the arterial

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tension, and is, therefore, contra-indicated. Sparteine and convallaria are useless. Caffeine and strophanthus sometimes produce favorable results. Belladonna and bicarbonate of soda are useless, and, perhaps harmful, because the belladonna disturbs the nervous mechanism of the heart and contracts the arteries. Electricity is generally unreliable or dangerous, and faradization should be used only in threatening syncope. Cocaine is dangerous, since it causes contraction of the vessels and cerebral anemia, thus tending to produce syncope. Inhalations of oxygen are useless. Antipyrin and allied drugs exert no favorable influence on the circulation, and if it be true that they dilate the peripheral vessels and contract the central ones, they will be contra-indicated. The value of bromide of potassium in small doses, less than 60 grains, he believes to have been exaggerated, and claims that large doses are objectionable. Chloral can be used as an hypnotic and anesthetic in doses not exceeding 30 grains; but is contra-indicated in larger doses on account of its depressing effect on the heart. Paraldehyde has been uncertain in its results. Sulphonal and urethane act too slowly. The salts of potash act unfavorably on the cardiac muscle, and if there is renal insufficiency, they retard the elimination of poisons coming from within or without the body. Blood letting acts slowly; it may abort, but it cannot cure the attack. General venesection is contra-indicated, since it favors syncope. Chloroform inhalations may be considered when nitrite of amyl and injections of morphia fail. The inhalations should be short and interrupted; the face and pulse closely observed. Such measures as ether inhalations, ingestions of ice, immersion of the left arm in hot water are uncertain, and only succeed in pseudo-angina. He strongly adheres to the treatment which he has adopted for years, namely, the administration of iodides in daily doses of 15 to 45 grains, continued for several years, with amyl nitrite or nitro-glycerine during the attacks. They combat the pain, relieve the arterial sclerosis, and thus guard against cardiac ischemia, which is the chief danger.

Dr. P. Watson Williams, in the *Practitioner* for February, 1893, discusses the relation of high arterial tension to angina pectoris, and the treatment of the latter affection. He believes that the essential factor in the disease is functional instability of the cardiac and vaso-motor medullary centres, and that this instability may result from peripheral irritation or exhaustion. When the unstable condition of the nerve structures results from toxines in the blood, like nicotine or effete matter, which the kidneys should eliminate, much relief will be afforded by correcting the habits and regulating the diet of the patient. Every condition which tends to induce persistent increased arterial tension should be avoided. In many cases in which the cardiac lesion or other irreparable pathological conditions necessitate high arterial tension, such remedies as arsenic and strychnia will be found very useful by giving tone to the nerve structures. In cases where the persistent high tension may be regarded as conservative, strychnia, digitalis and similar remedies aid the heart and neuro-vascular mechanism to perform the task of maintaining arterial tension.

While he believes that nitro-glycerine is required in grave cases of angina, yet he ventures to submit that it is possible that the too frequent use of remedies which render futile physiological effort to raise the tension, may result in an increase of the malady. In conclusion, he believes that there are very few cases where nerve tonics are not eventually more beneficial than nerve sedatives.

Guaiacol in Phthisis.

D. M. Reese (*Internat. Med. Mag.*, February, 1893) reports his experience with guaiacol in phthisis. He employed the drug in 66 cases in the out-patient

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department and in 35 in the wards of the Johns Hopkins Hospital. Of the dispensary patients, 35 had extensive disease, and 31 had slight involvement of one or other apex; 13 with advanced phthisis, showed some signs of improvement, while in the remaining 22 there was no change. Of the 31 incipient cases, 10 showed distinct improvement. Among the ward patients, 35 in number, 21 were distinctly benefited.

In 3 cases the drug was given hypodermically in ten minim doses daily, with the view of lowering temperature, but in no instance was it lowered more than 1 degree an hour after the injection, and the fall was only transient. Pain was experienced at the seat of injection, but in no case was there abscess formation. The only good effects seem to have been temporory reduction of cough and expectoration. In a few cases the physical signs improved, but there did not seem to be any evidence of specific action on the bacillus. In early cases, the general nutrition was benefited and the appetite improved. Guaiacol had the advantage over creasote in not causing gastric disturbance.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,
FRANK W. TALLEY, M.D.

Melena Neonatorum: Violent Intestinal Hemorrhage in a Nursing Infant Three Days Old.

Dr. Gelpke, of Liestal (*Correspondenz-Blatt für Schweizer Ærzte*, February 1, 1893), gives the following notes of a case of melena neonatorum in a 3-day old infant: The first two passages were normal; on the third day the first bloody passage occurred, and for three days the stools were copious, consisting partly of pure dark blood and partly of tarry matter, and apparently attended with great pain. The child became waxy in appearance, and is at the present writing (five months later) extremely anemic. The father, mother and numerous brothers and sisters are perfectly healthy. There is no trace of syphilis or hemophilia.

The condition is one of great rarity, occurring about once in 4000 births, according to Leopold. Concerning its etiology there is great difference of opinion. Syphilis and hemophilia are the common credited causes. Münchmeyer has found ulcers in the duodenum, Nieberding found the arterial duct remaining open, with narrow pulmonary arteries and an overfilling of the arterial system with venous blood. Emmet reports multiple hemorrhages in an infant following the administration of ergot to the mother.

A New Method of Artificial Respiration in Asphyxia Neonatorum.

Dew, of New York (*New York Medical Record*, March 11, 1893), describes a new method for establishing respiration in asphyxia neonatorum, which is less fatiguing to the operator than Sylvester's method, and can be performed without shock.

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The method is described as follows: The infant is grasped with the left hand, allowing the neck to rest between the thumb and forefinger, the head falling over backward, straightening the mouth with the larynx and trachea, thereby serving to raise and hold open the epiglottis. The upper portion of the back and scapulæ resting in the palm of the hand, the other three fingers are to be inserted in the axilla of the baby's left arm, raising it upward and outward. Then, with the right hand, if the baby is large and heavy, grasp the knees in such a way as to hold them with the right knee resting between the thumb and forefinger, the left between the fore and middle fingers. This position will allow the back of the thighs to rest in the palm of the operator's hand. If the infant is small and light, it will be found more convenient and easier to hold it in the same way by the ankles, instead of the knees, allowing the calves instead of the thighs to rest in the palm of the hand.

The next step is to depress the pelvis and lower extremities so as to allow the abdominal organs to drag the diaphragm downward, and with the left hand to gently bend the dorsal region of the spine backward. This enlarges the thoracic cavity, and produces inspiration.

Then, to excite expiration, reverse the movement, bringing the head, shoulders and chest forward, closing the ribs upon each other. At the same movement bring forward the thighs, resting them upon the abdomen. This movement arches the lumbar region backward, and so bends the child upon itself so as to crowd together the contents of the thoracic and abdominal cavities, bringing about a most complete and forcible expiration.

THE EFFECT ON SUCKLINGS OF PURGATIVES ADMINISTERED TO THE MOTHER.

GOW, of London (*The Practitioner*, March, 1893), was inspired by the experiments of Fehling upon the appearance of certain drugs administered to nursing women in the milk, to the investigation of the effect upon the nursing infant of purgatives administered to the mother. Four drugs were selected—aloes, senna, cascara sagrada and sulphate of magnesium. In all cases the frequency of the action of the bowels was noted before and after, in both mother and child, and the trial extended over a period of time not less than a week, and in some cases longer. The observations were simply clinical, no attempt being made to determine whether the drugs given appeared in the milk. The infants varied in age from 3 weeks to 10 months.

Eleven observations were made with senna, administering 10 grains once a day, and in a few cases oftener. With one exception, the child's bowels were unaffected, and in the exceptional case they were "less costive than before."

Ten observations were made with aloes, administering 2.18 grains of Barbadoes aloes, combined with extract of nux vomica, once a day, in five cases, and twice a day in the remaining five cases. In eight cases the child's bowels were unaffected; in one case the child became more costive, and in one case the bowels acted more freely.

Ten observations were made with cascara sagrada, in doses of 2 to 5 grains of the solid extract and ½ drachm of the fluid extract. In eight cases the children's bowels were unaffected; in one case they became more costive, and in one case less costive than before.

Eleven observations were made with sulphate of magnesia, administering one drachm three times a day. In five cases the children's bowels were more freely opened than before. In one case the child became more costive.

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These observations show that sulphate of magnesia, administered to the mother, lead to purgation of the child in nearly half the cases. Senna, aloes and cascara sagrada seem only occasionally to produce this result, and, therefore, may be considered most suitable remedies for constipation in nursing women.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

The Treatment of Pelvic Suppuration.

Pean (*Gazette de Hôpiteaux*, No. 110) divides the consideration of this condition into three heads:

(1) Typical suppuration without any alteration of the neighboring organs.

(2) Mixed suppuration with involvement of the neighboring organs, such as stenosis of the uterus or vagina or tumors of the uterus.

(3) Complicated suppuration with rupture into the abdominal cavity or bowel. The uterus and adnexa where necessary should be removed through the vagina, because in simple cases the removal is very easy and in difficult cases easier than through an abdominal incision. It is more certain in its end results, and allows better disinfection and drainage.

The mortality of the operation is almost nil. Of the 150 cases operated upon by Pean 145 made a complete recovery. In cases of mixed and complicated suppuration the vaginal method is the only one to be considered.

Hysterectomy for Puerperal Metritis.

B. W. Goldsborough (*New York Medical Journal*, February 18, 1893) reports a case of septic infection in one of his patients, occurring at the end of the third day after an easy labor. When first seen she had a temperature 104.5° F., pulse 120, and an anxious and collapsed expression. The uterus was washed out with "warm carbolized solution," the bowels were purged, and quinine and phenacetine were administered. Only temporary improvement followed these measures, and the lochia continued offensive and the diphtheritic patches were still over the cervix the next day. On the fifth day Dr. H. A. Kelly was summoned and removed the uterus by abdominal section. The stump was treated by the extra-peritoneal method after being burned out with a Paquelin cautery, and the peritoneum united carefully to the peritoneal investment of the cervix, thus shutting off the cervix from the pelvic cavity. The uterus was large and everywhere infiltrated, containing necrotic masses in its substance where the muscular tissue was

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disintegrated. The patient immediately improved, and the temperature and pulse rate became normal after three or four days. There was a stitch abscess five days after operation, and about a month after, a phlebitis, beginning in the left ankle and extending up the body and involving the right leg on the following day. No other sequelæ appeared, and the woman is in perfect health, a year having elapsed since the operation.

"Combined Operations" in Gynecology.

An editorial in the December issue of the *New York Journal of Gynecology and Obstetrics* calls attention to the incorrect principles underlying some of the plastic operations upon the female genital tract. After discussing the anatomical relations and the mechanical features of the case, the statement is made that there are three reasons why the plastic operations for prolapsus uteri should not be performed at the same sitting. These are (1) involution; (2) the effect of opposing forces; (3) the effect of continued pressure of the speculum or retractor.

It is claimed that while involution is the chief object to be gained in these plastic operations, it is impossible for the operator to gauge the steps of his operation in such a way that the proper amount of retraction will take place in one part without interfering with the same process in an adjacent part which is also operated upon. Either he will denude too much tissue by the combined operations on the cervix, the anterior and posterior vaginal walls, or not enough, and consequently fail to attain the object of his operation. It is better practice to repair the lacerated cervix and allow a sufficient length of time for complete involution to occur before attacking the cystocele or rectocele, as the process of involution, which is primarily in the cervix, will affect to some degree the vaginal tissues. The combination of "Alexander's operation" with the plastic operations referred to is condemned because its principle is false, in that it affects the circulation of the uterus as badly to have it "fixed" above its normal plane quite as much as when it is prolapsed.

Tuberculosis of the Female Generative Organs.

J. Whitridge Williams (*Johns Hopkins Hospital Reports*, Vol. III) says that while genital tuberculosis has been known to exist for a great length of time, it is only since the adoption of abdominal section for the cure of tubercular peritonitis that it has assumed an important position as the possible mode of origin of that affection. Previous to that time it was only of interest as an occasional find at autopsies on phthisical women, who might or might not have a tubercular peritonitis.

The comparative frequency of this disease was made known to the writer through the plan he had adopted a few years ago of systematically examining all pathological specimens of female generative organs. Instead of this condition being a pathological curiosity, these investigations have shown it to be a disease of practical interest and importance. The following conclusions are presented: Genital tuberculosis may occur at any age, from ten weeks to eighty-three years, but usually between the twentieth and fortieth years. It is generally secondary to tuberculosis elsewhere, but in a considerable number of cases is primary in the genitals. In the writer's experience about 8 per cent. of all appendages removed for inflammatory disease are tuberculous; only a small portion of these being recognized as tuberculous before operation. Every portion of the genital

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tract may be affected, the order of frequency for the various portions being: tubes, uterus, ovaries, vagina, cervix and vulva. The tubes are affected in nearly all cases, the uterus in from 60 to 75 per cent., and the ovaries in from 40 to 45 per cent. of all cases. Tuberculosis of the cervix occurs more frequently than is generally supposed, and is likely to be mistaken for carcinoma. Tuberculosis of the tubes and uterus is usually limited to the mucous membrane, and occurs in three forms: Miliary tuberculosis, chronic diffuse tuberculosis, and chronic fibroid tuberculosis. Chronic diffuse tuberculosis is by far the most frequent, and represents the well-known caseous form of the disease.

Genital tuberculosis may be due to direct infection from without. The occurrence of infection by coitus is very probable, but has not yet been conclusively demonstrated. The majority of cases are secondary to tuberculosis elsewhere, and are due either to infection from the blood or the neighboring organs. Even in the apparently primary cases it is impossible to exclude blood infection. The symptoms are not characteristic. In primary cases they may be entirely absent, or simulate the symptoms of simple endometritis and salpingitis, or, on the other hand, give rise to indications of the most severe forms of pelvic abscess. In those cases where the genital infection is secondary, the symptoms of the primary infection may so overshadow those of the genital tract that they will not be recognized during life. The prognosis is always grave. Primary cases may lead to phthisis, tubercular peritonitis, or general infection, and either primary or secondary cases may go on to suppuration, abscess formation, and death may result from marasmus and hectic fever, or peritonitis, or from the primary affection.

Primary cases can only be diagnosed by the discovery of the tubercle bacilli in the secretions, or the demonstration of the histological characteristics of tuberculosis in the scrapings from the uterus. The co-existence of tubo-ovarian masses with phthisis and tubercular peritonitis should at once arouse suspicion as to the tuberculous nature of the affection. The treatment may be prophylactic, palliative and operative. Preventive measures consist of cleanliness and the prohibition of coitus between persons one of whom has genito-urinary tuberculosis. Ulcerations of the vulva, vagina and cervix should be treated with application of iodine and iodoform, and excised if isolated, and intractable to treatment. Tuberculosis of the uterus should be curetted and iodoform introduced; if the disease recur, vaginal hysterectomy may be performed. Tuberculous tubes and ovaries should be removed, unless the patient's general condition contra-indicates such procedure, as in advanced phthisis. Tubercular peritonitis and the early stages of phthisis are not contra-indications to such operation.

Chronic Inversion of the Uterus.

W. L. Brasius (*Medical and Surgical Reporter*, March 25, 1893) reports a case of inversion of the uterus of twenty-five years' duration. The condition followed the birth of the woman's first and only child, and produced a state of invalidism through the effects of menorrhagia and various reflex symptoms. The reposition of the inverted uterus was accomplished by the use of Aveling's instrument in about a day and a half. In order to maintain the proper position of the fundus, an intra-uterine support was devised by wrapping gauze around the vaginal pipe of an ordinary household syringe, and also drawing the gauze through the pipe for the purpose of providing drainage as well as support. This appliance was continued for ten days, with daily renewals and cleansing, and the uterine canal at the end of this time measured three inches.

The reposition occurred eight months ago, and the patient has menstruated

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regularly ever since without excessive flow, and has regained her health. The writer suggests that in using the repositor the push should be made in the direction of the greatest resistance, which will usually be found to be in the axis of the superior strait; that the pressure be only sufficient to accomplish gradual reduction; that when reposition is accomplished it be maintained by elevation of the fundus by some sort of intra-uterine support, and that every precaution be taken to insure perfect cleanliness.

Papillomatous Tumors of the Ovary.

Johns Hopkins Hospital Reports, Volume III, contains an exhaustive study of the above subject by J. Whitridge Williams. Twenty-six cases are analyzed, five of which came under the writer's personal observation. He is led to believe that papillomatous growths of the ovary are of far more frequent occurrence than is generally supposed. Inquiries addressed to over fifty operators in this country and abroad, with reference to their knowledge of the condition, brought negative replies from all but seven. In regard to the etiology of these growths, it is stated that we are as ignorant as our predecessors, and that a study of the twenty-six cases reported does not appear to confirm the theory of Gusserow and Olshausen, that their formation is due to inflammatory processes which arise from infection through the tubes. These growths are derived either from the Graafian follicle or germinal epithelium; their origin from relics of the Wolffian body or from the tubal epithelium, while possible, has yet to be demonstrated. As the origin of both the ciliated and non-ciliated papillomatous growths is identical, it is held that there is no justification in considering them as constituting two distinct classes of growths. Most papillomatous cystomata are not developed in the broad ligament, the majority of intra-ligamentous papillomatous growths being of other than ovarian origin. The superficial papillomatous growths of the ovary are of far greater frequency than is generally supposed. They are very closely related to the papillomatous cystomata, and are always derived from the germinal epithelium. All varieties of papilloma of the ovary have a marked tendency toward the formation of secondary growths, the majority of which are produced by mere extension of the growth by continuity of tissue or by implantation of small particles of the tumor upon the peritoneum. In rare instances true metastases may be formed. These tumors possess a strong tendency to become malignant, and even the anatomically benign growths, in view of their tendency to the formation of secondary growths, are to be considered as clinically malignant. Finally, the results of operations, even after the formation of secondary growths upon the peritoneum, are quite satisfactory.

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PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

A Study of the Artefacts of the Nervous System.

Ira Van Gieson (*New York Medical Journal*, 1892) calls attention to the congenital and accidental displacements of the white and gray substance of the spinal cord. The congenital cases are true heterotopia, and are exceedingly rare, the majority of described cases being simple bruises of the fresh cord. The true cases of heterotopia comprehend four cases described by Pick, one by Hans Virchow, and one by the writer. All the cases seem to have been discovered accidentally, and they all are minute fragments of gray matter, generally of the gelatinous substance of Rolando, occupying abnormal positions usually in the posterior columns of white matter. The writer reviews at length the various methods of removing the spinal cord, and urges great caution, as the slightest tap upon the cord with chisels, mallets, osteotomes, or pressure with bone forceps or shears, may cause a bizarre arrangement of the elements, even though the dura mater is not lacerated. The saw is recommended, and great caution urged in its use.

Many appearances resulting from accidental and experimental compression, pinching, bruising and crushing of the cord are described, and explanations offered as to the manner in which these cause the dislocation of the horns of gray matter, detach fragments of gray matter, cause the occurrence of cavities, clefts, fissures, etc. Lastly, twenty-four described cases of malformation of the cord are shown to be erroneous and unreal; these cases actually being nothing more than accidental technical faults of manipulation. The article is a thorough one, and worthy of careful study.

Flies and Cholera Transmission.

M. Simmonds (*Deutsche medicinische Wochenschrift*, 1892, No. 41) has found that flies can serve as carriers of cholera germs. He enclosed them in a large flask where they were free to walk and fly about as much as they pleased, and found that at the end of several hours cholera spirilli, which he had placed upon them, neither dried nor died; hence, he concludes that where soiled clothing or discharges from cholera patients are allowed to stand in the sick-room for a short time, flies alighting upon them may be the means of carrying the disease germs from house to house.

Tox-Albumin in the Vomit of Cholera Patients.

Konrad Alt (*Deutsche medicinische Wochenschrift*, 1892, No. 42) found in the vomited material from cholera a tox-albumin which he was able to separate by repeated precipitation with alcohol. This was so poisonous that 1 ccm. of a solution injected under the skin of rats and guinea-pigs, caused death in four to twenty-four hours. There was stiffness of the muscles, especially of the hind legs,

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which came on in a few minutes, and in some cases muscular cramps came on. Dogs exhibited similar symptoms. After a couple of days the same odor was observed as is recognized upon opening fresh cholera cadavers.

INJECTIONS OF BLOOD-SERUM FOR THE CURE OF SYPHILIS.

A. KOLLMANN (*Deutsche medicinische Wochenschrift*, 1892, No. 36), in following up the work of Tommasoli (*Gazetta degli ospitali*, 1892, No. 28), who claimed to have produced therapeutic results in the secondary stages of syphilis through the injection of lamb's blood-serum, found that his results were exactly the opposite of Tommasoli's, and though he used the blood-serum of sheep, calves, dogs and rabbits, his results were constantly negative. The injections, which were generally about 6 cc. each, were without general or local disturbances.

THE ETIOLOGY OF PEMPHIGUS.

STRELITZ (*Archiv. für Kunderheilkunde*, Vol. XVI, p. 101) found by new study of the acute pemphigus, the same two bacteria which he had formerly found, *i.e.*, a white coccus occurring in some of the blebs, and another which cannot be differentiated from the staphylococcus pyogenes aureus. He inoculated himself on the left arm with a pure culture of the latter, and thirty hours after a regular pemphigus bleb appeared, which lasted four weeks, and was followed by a crop of new ones in the same locality. Inoculation from the blebs continually gave pure cultures of the yellow coccus. The process healed without a scar. The experimenter believes this coccus to be the cause of the benign form of pemphigus so frequent in the new born.

THE TECHNIQUE OF STAINING THE AXIS-CYLINDERS IN THE CENTRAL AND PERIPHERAL NERVES.

Dr. H. STROEBE (*Centralb. f. Allg. Path. u. path. Anat.*, February 1, 1893, Bd. IV, No. 2):

(1) Harden the specimen well in Müller's fluid four to five months.

(2) Harden in alcohol, absolute alcohol, imbed in celloidin, and cut in thin sections.

(3) Stain in a saturated waters solution of Grübler's analine blue ten minutes to one half, to one hour. The sections become dark blue-black.

(4) Wash well in water, and, for differentiation, wash the sections in absolute alcohol, to which twenty to thirty drops of a 1 per cent. solution of caustic potash in alcohol is added. This solution is made by allowing one gramme of caustic potash to stand in 100 cc. of 96 per cent. alcohol for twenty-four hours, and then filtering. While in the alkaline solution, there is a precipitate of stain about the sections which changes to a rose-red color. This color rapidly becomes lighter, and when a transparent light brownish-red is reached, the differentiation is complete. No definite time can be given; sometimes it requires a minute, sometimes several minutes.

(5) Wash for about five minutes in a large quantity of water; the color now changes from red to blue, and the sections should appear light blue.

(6) Counter-stain in a concentrated watery solution of saffranin, diluted one-half, for one-quarter to half an hour.

(7) Wash out the excess of saffranin and dehydrate in absolute alcohol. The nervous tissue is now red, with a blue tinge.

(8) Clear up with xylol.

(9) Mount in Canada balsam.

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EXPERIMENTAL INVESTIGATIONS ON THE ACTION OF ALCOHOL ON THE LIVER AND KIDNEYS.

C. VON KAHLDEN (*Zeigler's Beiträge*, Bd. IX, p. 349). The experiments were made upon dogs, rabbits, ducks, chickens and pigeons, to whom 96 per cent. alcohol, diluted one-half with water, was given daily, or on alternate days, by means of the stomach tube.

The alterations in the liver were very slight, a few of the cells and the "Kupfer star-cells," being fatty. The kidneys, on the contrary, showed degenerative changes which were very pronounced. The epithelium of the convoluted tubules and loops of Henle was fatty degenerated, the fatty changes beginning at local areas and spreading. The glomeruli were always free from the fatty change, as well as their epithelium and the endothelium of their capillaries. The endothelium of the middle and larger vessels often showed far advanced fatty change. Besides the fatty change, there was also necrosis of cells apparent, and also vacuolation of cells. There was no increase of the connective tissue.

PACCHYMENINGITIS INTERNA HEMORRHAGICA.

E. D. BOUDURANT (*Alienist and Neurologist*, January, 1893) reports eight cases of pacchymeningitis interna hemorrhagica, in every one of which distinct vascular changes were to be observed, varying from slight localized thickenings of the intima of the smaller arteries of pia, brain and internal organs, with scattered patches visible to the naked eye in the aorta and larger vessels, to a high degree of atheromatous disease with extensive and extreme thickenings and degenerative change. The writer is not prepared to assert that in every case of non-traumatic hemorrhage there is arterial disease, but suggests that its frequency warrants a careful search for it. Given such diseases of the arteries as described, no inflammatory trouble is needed to produce the disease. A diseased artery subject to congestion ruptures (generally in the pia) and a thin membrane-like hemorrhage occurs beneath the dura. Partial organization of this may follow with the formation of imperfect new bloodvessels, which, rupturing, cause additional hemorrhage and allows of increase of the process.

BOOK NOTICES.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN. By JOHN V. SHOEMAKER, M.D., Professor of Skin and Venereal Diseases in the Medico-Chirurgical College and Hospital of Philadelphia. Second edition, revised and enlarged, with chromogravure plates and other illustrations. New York: D. Appleton & Co., 1892.

In this second edition, appearing four years after the first, the enlargement has been material, consisting of about two hundred and fifty pages. The additions have, in the main, been made in the introduction of new matter. It is the author's particular felicitation that he does not write as a specialist, but as one in general practice who has

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had large opportunities in this special line of observation. Certainly the morbid appetite of the student and early practitioner for formulæ must be gratified by this publication: scattered through the text, in regular form, will be found about two hundred formulæ, independently of the large number incorporated in the running subject-matter; and in addition to these a formulary of a hundred pages, containing an average of seven prescriptions to the page, is provided at the end of the volume. It is extremely questionable whether this adds strength to the work, even from a popular or commercial standpoint; from a strictly scientific point of view it is, of course, an element of weakness, for it cannot be gainsaid that the active and conscientious seeker after special or general medical knowledge soon learns for himself that, if he is to progress therapeutically, it is the rationale of treatment that must engage his attention and not the memorizing or multiplication of formulæ.

The author seems to be able to get remarkable results from treatment by the various methods of electrization, the experience of Hardaway and other competent dermatologists to the contrary notwithstanding. Thus, in speaking of franklinization: "Pruritus is frequently relieved by it, especially where it is a symptom of senile or other changes. . . . . Horns, corns, callosities, warts, hardened cicatrices and other hardened hypertrophic developments of the skin, are often removed by daily applications; while a similar result follows in cases of the tendency to repeated eruptions of blind boils, hard papules, acne marks and sluggish lymphatic glands, by strong sparks. . . . . In eczema and psoriasis I have frequently observed good results. . . . . In hyperidrosis, bromidrosis, in parasitic affections, such as ringworm, favus and tinea versicolor, I have also observed undoubted benefits follow from static treatment." Thus favorably, also, are faradization and galvanization referred to.

The author apparently holds to his former views regarding the usefulness of the oleates, although the experience of those engaged in this special practice is, upon the whole, except as regards the oleate of mercury, strongly at variance. Thus, in speaking of the treatment of favus of the scalp, the author advises the alternate use of the copper oleate and the mercuric oleate, and states as follows: "These applications should be made every day or two, and continued for three or four weeks. If after a cessation of treatment for a week or two the hair does not assume its natural aspect, and new favus crusts develop, the treatment should be begun afresh. The author has, however, in but few instances been obliged to resume it." In our experience, and it is not, unfortunately, a small one in the treatment of favus, and has included a conscientious trial of both oleates named, a successful result in from four to nine months could be considered exceptionally good, and this is the experience reflected by the writings of other specialists. Nor can we pass by without comment the author's advice as to the method of determining a cure. He says: "To determine when the treatment has been sufficient, from time to time a *single* (italics ours) hair should be extracted from each of the diseased spots in order to see if fungus is still present." We know, if we had followed this plan, that we would often have been led into error in pronouncing cases of favus cured—in fact, a positive opinion can only be expressed after the examination of

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at least several hairs from a patch, and this repeated at intervals once or twice; for it will occur often enough that of a given number of hairs selected from the most suspicious area a proportion will be entirely free from fungus. Again, in speaking of the treatment of tinea versicolor, although stating that "the author's experience, in private and hospital practice, has led him to view a radical cure of tinea versicolor as not quite so easy of accomplishment as might be inferred from the light manner in which writers refer to the subject," yet adds when referring to the use of oleate of copper, "no parasitic skin disease yields so readily to any one remedy as tinea versicolor will very often to the copper oleate. The author has succeeded with it in relieving and permanently curing many cases of the disease."

It would seem to us that in a treatise so large as that before us a more extended reference should be made to that granuloma fungoides; it is given nine lines. Moreover, in describing dermatitis herpetiformis the writings of Duhring and his followers and colaborers, Van Harlingen and Stelwagon, should have been drawn upon rather than, as apparently has been done, those of French and other foreign observers. These latter have scarcely grasped clearly what is meant by dermatitis herpetiformis. Duhring, as the author indeed mentions, was the first to gather together and group the various conditions under this one comprehensive and descriptive head, and his word-pictures of it are clear and concise. The French have, in part, and the Germans have not at all, accepted his generalization; and in drawing from these the result is an exceedingly obscure and contradictory description of the disease, which instead of aiding in the elucidation of the subject will only add greater confusion.

We do not wish to be considered as harshly criticizing the volume as a whole, for while in our judgment as a well-rounded, complete treatise it falls behind the recent works by Hyde and Crocker, there is much to commend, as in fact the appearance of a second edition in itself proves. Of its favorable features we take great pleasure in referring to the eight chromogravure plates—psoriasis, gummatous syphilide, acne indurata of the back, dermatitis venenata, ichthyosis, alopecia areata, lupus vulgaris and leprosy—all of which, for book illustrations, may be considered satisfactory representations.

The part of the publishers in the work, it need scarcely be added, is well done.

DISEASES OF THE KIDNEYS AND BLADDER. By W. F. MCNUTT, M.D., M.R.C.S., Ed., L.R.C.P., Ed. Philadelphia: J. B. Lippincott Company, 1893.

The author has modestly inscribed his treatise a text-book for students of medicine, but he has so thoroughly covered the ground that the practitioner could not fail to reap considerable profit from a careful perusal of its pages. It is true that very little new material has been added to the pathology and therapy of diseases of the kidneys and bladder, but what is actually known upon these important subjects has been presented in an exceptionally clear and concise manner.

The first chapter is devoted to a brief survey of the anatomy and physiology of the kidneys, the next four chapters deal with diseases of the kidneys and bladder, and in the fifth chapter the author has followed

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the usual custom of describing diabetes mellitus and diabetes insipidus in treatises on the renal organs.

The statement that albumin never exists in the urine with a perfectly normal condition of the kidneys might prove misleading to the student; for, excluding cases of cyclic albuminuria, which the author attributed to transient renal hyperemia, albumin is not infrequently present from the mixture of blood or pus with urine.

The nomenclature of inflammatory renal disease is often extremely confusing to students, and this is not remarkable when one glances at the array of names which the author has collected to illustrate a useless multiplication of terms. The author's own classification is a very simple and practical one; he divides Bright's disease into acute tubular nephritis, chronic tubular nephritis, intertubular nephritis and diffuse nephritis.

In the treatment of uremia no mention is made of venesection, and this, we believe, is an oversight, since in many cases free bleeding seems to relieve the urgent symptoms more quickly than all other remedies combined.

We believe that few clinicians would be disposed to accept the author's definition of diabetes mellitus, which he regards as a disease "whose pathognomonic symptom is the presence of sugar in the urine." It has long been recognized that glycosuria may result from many conditions, and that it is only one symptom in the complex disorder known as diabetes. The chapter on acetonemia will certainly need revision, since it is far from being the opinion of recent experimenters that acetone is the "product of the fermentation of grape-sugar," and since much that is current knowledge on the relation of oxybutyric acid to acetonemia has been entirely omitted.

Barring the few inaccuracies, which will doubtless be corrected in a subsequent edition, the author has accomplished his task exceedingly well, and the student who seeks information upon this most common class of affections will not turn to its pages in vain.

DISEASES OF THE LUNGS, HEART AND KIDNEYS. By N. S. DAVIS, JR., A.M., M.D. Philadelphia and London. The F. A. Davis Company, 1892.

This small book contains in its three hundred and fifty odd pages a considerable deal of information, which is in the main accurate and recent, but seems to us unsatisfactory in being unnecessarily prolix in certain parts and extremely brief in other places, especially in that part which practitioners and students, for whom the book is written, will most desire to read, the treatment of the various diseases.

The chapter on diseases of the lungs and pleuræ is the best as it is also the largest part of the book. The diseases are discussed from the standpoint of modern pathology, and perhaps too largely to the exclusion of proper consideration of purely clinical features. The reference made to Koch's treatment of tubercuolsis is adverse, but certainly just. The treatment advocated for pneumonia is, in the main, the commonly accepted one, but we cannot but marvel at the positiveness with which the author states that alcohol is neither a food nor a certain stimulant to the heart. This remarkable statement will find little favor with the

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majority of practitioners, and might, since the author sought to exclude matters of a controversial nature, very well have been omitted.

The chapter on heart diseases is disproportionately short, and, like the last, particularly unsatisfactory in the matter of treatment. In this respect accidental or more unusual symptoms are often entirely overlooked or barely mentioned. We might have expected some reference to the treatment of pain, or precordial distress, of nocturnal dyspnea, or cough, of gastric disturbances and many other incidental troubles which make the management of chronic valvular disease trying, but do not find it here. Tachycardia consumes five pages, and angina pectoris has bare mention under degenerative conditions of the heart wall.

The chapters devoted to diseases of the kindeys are much better than those dealing with the heart. Acute congestion of the kidneys is not at all referred to, and probably is considered under acute nephritis, though no distinct statement is made. "The prognosis of acute nephritis is generally favorable, for almost all cases recover." This sweeping assertion is radical in the extreme. We should say the prognosis was grave, though inclined to be favorable. It is needless to multiply comments, but it has seemed wise to call attention to some of the errors, as they seem to us to justify the view that the book will bear revision. On the whole the statements are accurate, but for the purposes of students certain subjects might have been discussed more briefly, others more at length.

TWO LECTURES ON THE CONDUCT OF THE MEDICAL LIFE. By S. WEIR MITCHELL, M.D., LL.D., Harv. Philadelphia: University of Pennsylvania Press, 1893.

These lectures, which appear as a supplement to this number of the MAGAZINE, were originally addressed to the students of the University of Pennsylvania. By invitation, Dr. Mitchell repeated them before the students of the Jefferson Medical College. On account of similar invitations received from other schools, and also owing to repeated requests, they have been published in a neat little volume of fifty-one pages.

The book is bound in boards, and is sold at twenty-five cents. It may be obtained from the University of Pennsylvania Press, 1516 Chestnut Street, Philadelphia.

The profits derived from the sale of this book will be donated by the author and the publishers to the fund for the Students' Club House at the University.

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SUPPLEMENT.

LECTURES ON THE CONDUCT OF THE MEDICAL LIFE.

By S. Weir Mitchell, M.D., LL.D.

A great soldier was asked in my presence what was in warfare the most interesting thing. He said, "Recruits going into their first battle." What he thought as to the young soldier I feel whenever it is my lot to see a mass of men about to turn from the training of the schools and to face the grim realities of the physician's life.

Here before me are some hundreds of men in the morning of existence. Where will the noonday find you? And the evening hour, when labor is over, and, looking back, the conscience, undisturbed by new ambitions, shall make up the ledger of a life—will it leave you weighted with the debts of wasted chances, or rich with the honest interest of accumulated character? That the veteran like myself should look with a certain sad curiosity at a group of young soldiers is not strange. Here are men of varied individuality, of unequal fortunes, of every condition of life—some for whom all their ways have been thus far made easy, some for whom life has been always hard. Here, at least, within these walls you have all had equality of opportunity. Let me hopefully presuppose you one and all to have used with diligence the precious years of training. You have thought, of course, of what you want to win. You vaguely call it success—success in life. That may mean many things. You will get some things you did not want or expect. You will fail where you least look for failure. You will win what you never dreamed of getting.

Glancing back over a career which has been, perhaps, one of exceptional success, I see that many things which I began by meaning to be or do I quite utterly failed to be or do. If any one had told me at the start, or a little later, that I should never reach in all my life the goal I early set before me—a professor's chair—I should have been troubled, perhaps discouraged. That I should secure other prizes as valuable I did not—could not—see. That I should stand here to-day where once I hoped to stand as a professor, and should feel that the fate which deprived me of the chance to teach with the tongue was my best friend—ah, that indeed seems strange to me as I look back and recall the bitterness of defeat.

And this is a lesson which in some shape all of you may learn in

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time. The moral of it seems clear to me: The great thing, after all, is, and ever will be, not what you win, but how you win it, or, in fact, how you lose it. The cup of the winner in a race means only that he was a little the better runner than a dozen; but the race trained all who lost as well as him who won. Is it not much that each got the honest best out of his preparation? The last in a race may be the truest winner, though a thoughtless crowd smiles at his lagging pace.

In the great race you are about to run, the prizes which now seem to you the true ones are, I fancy, a great practice, the competence it should fairly secure, the esteem of your fellow-men, and perhaps the blue ribbon of the professor's chair. But some of these are for the few, and sometimes for the unworthy. If conscience silently salutes you belated at the goal, and you know, with whatever added bitterness relative failure may bring, that you have done the best for yourself, with yourself, you will have won that which does not always go with the larger and more obvious successes of this mortal world. If, in a word, there be in regard to life largely looked at one thing which shines out clear and plain among its many riddles, it is that the making of character is the true and sure object of a rational existence. Failures are of use if you use them rightly, think of them rightly. If they make you lie down and give up, if they leave with you abiding bitterness and unmanly hatred of rivals, then are you so far ignorant of the nobler uses of defeat. And this is true of success. If he who wins a professor's chair or a great practice simply declines into unthoughtful and languid use of opportunities, shall we think of him as having truly won the prize? I have known men to whom failure was more valuable than success. I have known many to whom success was fatal, so far as growth of character or intellectual progress was concerned.

Be sure, however, that I do not mean by what I have said to advise you not to have definite aims in life. It is a good, and not in any way an evil, thing to set before your young selves certain results which you mean to reach by honest use of all the means which time and training may put in your power. What I do eagerly desire to place irrevocably in your minds is the belief that the means must be such as your best moments will approve. For then, whatever comes, you will at least be secure that your defeats or your victories are but a part of the loftiest education and a preparation for the higher evolutions of that other world where, as I trust, the life of effort may still go on with yet nobler aims and more secure results.

All this may seem to you, who, young and hopeful, look out on life with confidence which, alas! the years to come may rudely disturb —it may seem to you much like a sermon. I can promise to be less

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dull and more minutely practical before we are done. But these are to be lessons in the conduct of the medical life. Back of all right conduct must be a directing code or creed; and I could not ask you to go along with me into the consideration of the varied aspects of our work without making you feel with me how seriously I look at the life upon which you are about to start. Consider for a moment what it is. It is a profession, and not merely a business. He who looks upon it commercially, and only thus, is apt to fail of even the mere financial form of success, because it is the peculiarity of our mode of earning a livelihood that it is not and cannot be regarded as a mere business. We know too well the merely mercantile doctor; but the more you study the lives of exceptionally successful physicians in all ages, the more clearly will you come to see that the brilliant triumphs have fallen most often to those who had the highest ideals as to what they were dutifully bound to give rather than what they were in return to get. I am fond of saying that in our work we sell what neither we who sell nor those who buy can weigh or measure. We have no public to which we bend with abject submission as does the lower newspaper man, most timid of the reptilia; no judge or jury listens to us; no press or public look on to applaud or condemn. What we do neither the patient nor his friends can fully understand. One silent auditor makes up our moral accounts. That we live and are to live very largely a life of isolated self-judgment, that neither scale nor measure approves the amount and integrity of what we sell—this, I think, should make us doubly careful. I have no fear but that, as life goes on, the thoughtful among you will come to have a justified pride in your profession, and high standards as to what it should exact as to moral qualities and intellectual attainments; but too often the young start in life with vague ideas. I want you to go hence with unattainable ideals of what you mean to make your working lives; the higher the better. At all events, have and hold distinct conceptions as to the qualities which make men great in the higher manhood of medicine, and acquire them now. The world may make strange havoc with your views when, as years go on, you are to be guided by them in the every-day work of life. But he is to be pitied who when young having no ideals of duty, waits for opportunity to generate a code of conduct.

There are risks to character already active in your lives. When I see men become easily indifferent to the exposures and the pains and suffering of the clinic and the ward, thoughtless of the falling shadows of the poor man's death, brutal or full of levity when learning the secrets of man's structure in the dissecting-room, then I know that evil has begun which insensibly hardens so many. For, while excess of sensibility destroys efficiency of action, and makes impossible that

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neutrality of mind which should go before decision, the other extreme is worse, because in our work you will more or less fail if you do not take into account the sentiments, passions, temptations and pains of men. He who becomes a mere hard mental machine can never justly estimate the enormous importance of the moral nature in its influence on the subjects of disease. Inattentive to such considerations, he makes no useful estimate of that individuality which makes the too definite text-book statements of symptoms but mere mockery; for, believe me, character tells in disease. The symptom varies with the human soil. Temperament is, as it were, a modifying climate. Where one man worries, another laughs. I could lecture long on this need to know men through earnest, kindly estimate of their moral as well as their physical peculiarities—the human climate and the human soil. I have been run away with by my subject; but if this should result now and hereafter in making and keeping you tender, and therefore gentle, I shall not have spent the cheap money of words in vain. Out of such thoughtful, constantly recurring estimates of the effect of pain and trouble on others comes that divine gift of sympathy which in some men rises into the capabilities of genius. A thing, this sympathy, to be honestly cultivated in youth and sacredly treasured in age. As I have urged, it has its intellectual values in practice, and helps also to keep the conscience active. But be careful not to affect sympathy where you have it not. There are commercial representations of all the virtues. Take care! Make-believe sympathy is a false coin—most easy of detection. I recall with amused pleasure a fine old Quaker lady who told a doctor she did not like her feelings poulticed.

The early training of the doctor tends measurably to make us look upon man as a mere machine, on which we work with knife and saw and into which we cast with more or less thought our drugs. It is the fear lest you drift into this materialistic conception which makes me eager that you shall not quite lose touch of the feeling that the soul of a man dwells in this house of clay, and that forever you are dealing with an immensely complicated and ethereal thing, which thinks as well as feels.

I have heard it urged that our humanely managed demonstrations on living things tend to harden the student and to take away from him that just respect with which he should regard the wonderful vital works of God. I can only say that when as a young man I first saw exposed so much of the machine of moving life as one may see—the bounding heart, the swift rush of blood through the capillaries, the silent brain rising and falling with each breath—the effect upon me was then, and has been ever since, a growing sense of the awfulness of life. I trust that among you are many who have carried away with you a like sensation of the wonder and the marvel of it all.

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Out of that should come a keener perception of the vast complication, the almost hopeless riddles, of this strange machine, a man, and out of this again a vivid belief in the limitations of our knowledge and our powers, with, at last, such intellectual humility as ought to be his who, having learned all he can, knows, alas! how little are the counted gains of the long generations of our guild who have faced fairly this problem of life.

I am uneasily conscious of the gravity of all this talk. Its seriousness is but a measure of how earnest is my wish that you carry hence into your young careers a distinct capital of thoughtful, good intentions, and that these shall be founded on as clear conceptions of the finer qualities which in making the man make also the nobler doctor. We talk lightly of resolve, and say that the streets of a certain place are paved with good resolutions. Be sure that the highways of honor and true goodness were never paved without them. A great poet, who felt the need of man to form in youth an ideal for the conduct of life, has set it in verse which will live while men speak the English tongue:

> It is the generous spirit, who, when brought
> Among the tasks of real life, has wrought
> Upon the plan that pleased his childish thought;
> Whose high endeavors are an inward light,
> That makes the path before him always bright;
> Who with a natural instinct to discern
> What knowledge can perform, is diligent to learn,
> Abides by this resolve, and stops not there,
> But makes his moral being his prime care;
> Who, doomed to go in company with pain
> And fear and bloodshed, miserable train!
> Turns his necessity to glorious gain.

Might he not have been speaking of our own lives? He is telling us what should be the soldier at his best; but great truths have many applications, and this high-minded poem is throughout a lofty statement of the moral laws which should mould and guide in the conduct of any life. Before I leave it, consider with me a moment its helpful maxim, that high endeavor is to us as an inward light thrown forward on the paths of duty, and making all action easier. The endeavor may fail, but it is light unto the feet. Surely no man who in time of doubt has made up his mind to abide by the loftiest moral purpose can have failed to feel the relief, the illumination, which such decision casts forward on the way of purpose.

In an altogether admirable lecture on the man as doctor, the son of the greater Emerson has considered the influence of the doctor's

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life on character. Let us also think of this a little. You all start with a certain capital of moral and mental qualifications. Growth of character is the best interest. The coarser gains will take care of themselves. You may make some bad moral debts as you go along; we all do this. Try to know them as debts. It is best to be your own sharp creditor.

Just as the first few years of childhood determine in their training the product of deeply-grooved habits of truth, industry, punctuality, good temper, and other minor virtues, as important to you are the coming years of the childhood of the medical life. Now is the time when readily-won habits, and the carefully-cultured use of mind and heart, help to make the life to come simple, and its decisions easy. Be careful what you do with these years. Let us look at some of the aspects they present.

The world is quietly confident that we will care for the sick who cannot pay us. Was ever finer tribute to the creed of conduct of a vast group of men? And it is among these poor your earliest work will be. But even this unpaid service, of which I shall speak again, which you ought to desire for experience sake, and, too, because it is wise and well to do so—even this will not competently fill your many hours of leisure. Now, what shall you do with these unfilled hours? A time of peril—a time of moral risks. Believe me, the hours of obligation in life are scarcely so sharp a test of the man as those which we call of leisure. What he does with these latter, especially in youth, is the best means of knowing what the man is and what he will be.

The difficulty is greater with the doctor than with others. To-day he is busy, to-morrow he is not. The time when he would read, or what not, is broken by sudden calls. I really think that to know how resolutely to use the minutes is one of life's most valuable attainments. Take care of the minutes and the years will take care of themselves.

In great cities the young and but slightly occupied doctor has many resources; clinics, hospitals, dispensaries, lectures, may help to fill his hours; but even he has too much time. No one can or ought to study constantly; and probably his most valuable reading is in connection with his cases.

But, whether in town or country, what shall you do with the hours still left at your disposal when the reasonable claims of exercise, study and social life have been provided for? On your decision depends whether you mean to be merely a more or less well-running medical machine, or whether, with larger views of life, you desire to rise above the common levels of professional existence. All your life long you will have times, such as come to the busiest, when there will be leisure

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for other than professional work. Can you learn in youth to do things which will agreeably fill these hours? and can you continue amid growth of labor to do the like? This seems to me a question of continuity of energy. Plenty of men are good for a spurt, or even for long work; but that sustained power of industry which enables a man to use himself steadily in a variety of ways is in some measure a gift, and in some degree, I feel glad to think, an acquisition which he may successfully will to get. I have known several men, and one I know full well, who, being by temperament lazy, have become restlessly active, and learned the great truth that mere idleness is a less perfect rest, strange as it may sound, than variety of occupation. The outcome of my advice is to get some hobby and ride it early and hard. Those hobbies which lure a man out of doors are best; and in botany, mineralogy, or geology, according to your tastes and surroundings, you may find valuable resources. I know a railway president who is an admirable botanist, a half-dozen country doctors who are as good, two who are excellent mineralogists. Only, do something of the kind; for be assured that no matter what branch of natural study you follow it will have its advantages in making you a more competent student of the ills which should ever be and remain the ruling study of your life.

There is a quite happy temperament which finds joy in mere simple observation of nature, and one which is pleasantly reflective in its dealings with the gifts of observation. I have ridden very many times long miles with country doctors, and been amused or instructed to see what use they made of their endless drives. Once, some years ago, I was asked by one of these gentlemen if I would like to go in the saddle from the station where he met me. The ride was long. I had sent him Dr. Emerson's little lecture, and he quoted from it what Mahomet said of the horse: "Blessings, success and rich gain shall be hung to the forelock of the horse till the day of resurrection." My friend was disposed to take me across country, but this I declined. He talked of horses much, and rarely drove. "A horse," he said, "is your friend when you are on his back, your servant when he is pulling you." This man was a mere lover of nature, and had a mind full of the oddest thoughts and reflections on the horses he loved and the changeful nature which had become for him a pleasant chatty comrade. He collected in his garden all the wild flowers, transporting their natural soil, knew the names of none, and talked to me ten minutes about the eccentric growth of a tulip-poplar he had known from youth, and how trees varied according to their soil and surroundings. A plain, odd, direct man, this, and an able doctor. I asked him if he knew that wonderful text-book of the methods of mere observation of nature, Ruskin's "Modern Painters." He said, "No,"

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and I sent it to him. He wrote me that it was "a great book, but a bit hysterical in places;" and if this judgment makes you read it, you may agree or not, but you will find in it, as I have done, more of the art of simple study of natural objects than in any other volume known to me.

With our reflective people this type of mind is not rare.

I was once driving with a plain country doctor, also a quite old man, when he pulled up his horse, and, jumping out, returned with a flower. "Ah," he said, "that I never saw before; and I know every weed within an area of twenty miles, and I don't know the name of one of them." Presently he called my attention to a curious hypertrophic growth on a fir-tree, a thick mass of tangled twigs;[1] and so I saw that my companion was, without added science, a good observer—a man who sees. I found, too, as I expected, that I could tell him no new thing as to the case in which he had asked my counsel.

This habit of active every-day observation is all the better for the methodical addition of science, but may well enough exist without it. It is, in fact, a quality which, strange as it may seem, few doctors possess or sedulously cultivate. One man goes to and away from a bedside, or talks to a chronic case, and sees and hears no more than the bare symptoms; another is curiously wide awake as to all his senses; by mere habit nothing escapes him; the patient's expression, his room, his dress, his surroundings, all interest him, and some day he gets out of all this results when other men fail. A friend of mine on his way to a train in Milan was accosted as he crossed the court of his hotel by an American, who said: "You are Dr. Blank. May I consult you? I am very sick." My friend said, with a glance at his face, "You are nervous and can't sleep." "That is true." "Well, you smoke in excess, and chew. Quit it altogether. I have no time to say more. Good-by." The bewildered patient obeyed the order, and, coming home, spoke widely—and he was a well-known man—of this acute diagnosis. When my friend was asked to explain it, he said: "The man looked haggard; his hands shook; at the corner of his mouth was a slight stain of tobacco; in his waistcoat-pocket were four big black cigars. It was plain enough." Yet how many men would have seen all this? I could tell you other such stories, but one may suffice, as my business is not alone to amuse you.

One man notices what he is called on to notice; another observes well enough with eye, ear, or nose, but fails to remember so as to make use of the magazine of stored-up sensations. People with senses always alert like sentinels are rare. I was once, at dusk of evening, long years ago, when a student of medicine, in an omnibus with my father.

[1] In middle Pennsylvania called a hurrah's nest. But this phrase has also other applications.

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Suddenly he said to me, quietly: "It is curious; I have had a sensation of something disagreeable which for a moment puzzled me. Now I know what it is. It is the odor of smallpox. There is some one near us who has it." At the next corner a young man got out. As he passed us my father saw that his face was dotted with the quite well-formed eruption. We followed him out of the omnibus, and on the sidewalk my father explained in a kindly way to the young man that he was ill, and with what manner of disease. He said, in explanation, that he felt sick, but that although fevered for some days he had not known what was the matter, and so had continued to work rather than lose his job. This little story illustrates the way in which the mind and observing senses work automatically in the long and thoroughly trained.

These remarks on the power to observe, on the education of the senses until they seem to work with ready certainty, have led me off the main highway of my thesis. Let us find the road again. I was trying to make clear to you that some out-of-door pursuit of nature's ways was of delightful use, because the play of the mind trains for its serious work, and because these resources never fail to add to the happiness of life, and, so far as may be, to bring into an existence full of worries and anxieties that remarkable contentment which I have observed to be the best moral property of the naturalist. "Care sits behind the rider," was said of old—but not, I think, behind him who rides a hobby. I remember once, at my own table, my friend Leidy listening with curious attention to a man who said that life was tiresome at times, and that the thing which has no English name—*ennui*—was not rare with him. Leidy looked up with a smile of gentle sweetness which swiftly interpreted the man. "How," he said, "can life be tiresome so long as there is still a new rhizopod undescribed?" I once kept him waiting for me nearly two hours on a beach near Newport, my horse having gone lame and delayed me. I came up to him full of apologies. "My dear Mitchell," he said, "just look at this worm. I am quite satisfied that it must be new. I turned over two stones in this brook, and have found a whole menagerie; and now, I suppose, I really must leave them. I am so sorry." Have I helped you to see what I mean? No, we cannot all be Leidys, but this easily-won delight in nature may be had for the wooing of it by minds less great than his. And, too, if your nature-studies make the habitual use of the microscope easy, there, too, is a clear gain in training, for more and more does the doctor's work involve skill in its use. Indeed, it seems to me that all our progress makes more easy the possibility of research in remote localities, with small means, away from cities. Shall we let ourselves forget that Jenner and Koch were country doctors? To this point of medical education I may return;

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but now I want only to urge that for him who does not care for botany or minerals every pond about him offers to his assisted eyes a world of tiny vital dramas in the minute life of plant and animal.

Once I was going to see a patient with a middle-aged physician near a Southern city. I asked him how he amused himself. "Oh, very well," he said. "When I was young I used to read novels if I felt tired and had an idle hour; but I found out some years ago that the fresh-water sponges were much more entertaining and never by any chance stupid. But I do read novels still; only not so many."

I have said that it were well to have a hobby, but that it were also well that the side-pursuit you choose should have acceptable relations to your own mental structure. I know of many admirable physicians to whom all forms of accurate natural history pursuits are distasteful or difficult, owing to some defect of intellectual construction. We need not pause to analyze: I for one must admit the fact, because I personally illustrate it. My friend Leidy used to smile when I urged that I could never be a botanist, because I could by no possibility recall the names of species, or even of genera. We once tested his own memory after a meeting of the Academy of Natural Sciences, and found that he was easily master of at least ten thousand botanical names, or specific and generic labels. He used to insist that it was all a matter of training. I am sure this is not so, and mention it only to illustrate my sub-thesis that one's side-studies—the choice of what we make the play of the mind—may have limitations due to individual differences.

There remain, for the use and joy of leisure hours, books. Not medical books; these are for hours of study; and I would like in my digressive way to pause a moment on this matter. Once for all I beg you to hold me excused for this pleasant freedom, and free to consider this the wandering talk of an older man with younger friends. What I lose in form and method we may gain in easy pleasantness of statement. Therefore a word as to medical books. Do not read too quickly. Do not let the book devour and digest you. It is so easy to float along on the accepted statements of a writer. Print imposes itself on the languid reader. There are no bullies like books. Remember that what men—even the best—say in books ought to be digested. Turn on them the critical tap of your mental gastric juice, to tease and solve out their cores of meaning. A little of the bitter cynical bile is not out of place.

Continuous care as to reading gives in the end that swiftness of apprehension of things in print which at last results in power to seem to skim books and journals and yet to make available conquest of their contents. This comes with time, and presupposes large familiar

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knowledge and immense previous fractional attention. This is really a form of training in the observation of what is set before you in print. Become an observer of books, not a mere lazy reader.

First, then, comes care—attention to what you read. Next comes the habit of thinking, as you go, about what you read for medical use. The mood of indolent acceptance of what is seen in print saves much present trouble. But the neglected opportunities of youth are ruthless usurers. Therefore learn to ask yourself if what you read is proven; if the observed facts are as stated. A vast amount of safe, accumulated knowledge exists in medicine to-day, a vast amount is doubtful. The fact which seems certain to day is to-morrow insecure. The sanguine statements as to new drugs and novel methods set forth by discoverers or inventors invite and too often justify the caution of discreet scepticism. There never was a day when the quiet judgments of the general practitioners were more needed. And, after all, it is the public opinion of this great jury which decides and keeps a drug in use or lets a vaunted method drop into the limbo of rejection.

Ask yourself as you read if this or that may not be improved upon. Longfellow once wrote that it was not well for the man in common life to turn somersaults in order to appear original. Appearance of novelty is not what is to be desired. But when a fresh idea occurs to you, put it down in a note-book. Look at it again. It may seem valueless to-morrow. There is deceptive self flattery about what one's own brain originates. And yet the habit of trying to take new views of things, to regard nothing stated as beyond some one's bettering—perhaps yours—is, I assure you, a good plan. I have many pages of such notes. Too often these hints for research come to nothing; but sometimes they come to a great deal. Above all, do not merely stuff yourself with reading. Read thoroughly about some one subject at a time, and do not try to keep up always with the vast mass of accumulating statements. As to the swiftly changing beliefs on bacteria, vital chemistries, and the like, read now and then some one of the summarizations of these matters: that will be enough.

And books—other books—what shall I say of these to the young man who turns to them as the noble playmates of his leisure? A vast mass of good or bad or neutral literature is nowadays cast before the world. If you learn early to content yourself with the mere pleasant fiction of the day, when more wisely minded you will find it hard work to change your diet. It is a law of the mental life that a man grows to like what he does long enough; and so, be sure that, if in the youth of your career you choose for comrades the master-books of the world, you will in time find their company wholesome and attractive. Like

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the best of earthly friends, these great books are hard to capture. They repay the effort. Like our friends of the flesh, they have their limitations; and, as with the friends who are alive, you must not expect too much. But the great books are fine mental tonics, and do not die. As years go on you turn to them with increasing certainty of satisfaction, but they must for this have been yours in younger hours.

I think it a sign of narrowness of nature when I find a young man indisposed to read the great books. He may succeed in life—it has little to do with that—but he will have lost a vast resource and will have ignorantly let go by until too late the noblest of friends—the fine company of those who, being dead, yet speak.

I am not so foolish as to tell you not to read fiction. But it is not a good exclusive diet, even for the leisure of the young. There are times when it is valuable—good as a change. But choose it wisely. It is better, I think, for the old or middle-aged. I myself find that after a tiring day the best preparation for sleep is a pleasant hour over some absorbing novel. But as to this men's tastes vary. Nor less as to that noblest branch of literature—verse—with which our profession has some interesting relation. In fact, it has produced many poets, and men as grave as the great Haller have written good verse. For many active men in our profession I have known poetry to be in their busy lives what music is to some people. But as with music, so with poetry, the taste must be natural, or at least cultivated in youth.

Reflect, then, what it is I urge upon you. Poetry means the most elevated thoughts in the most condensed form of the best language, told to the music of rhyme and rhythm.

The best literature of prose and verse is what I ask you to make a part of your mental outfit for that profession in which no accomplishment can possibly be wasted. You deal not with the bodies of men alone; woe to them and to you if this be your definition of medicine. Men's souls, men's lives, their thoughts, passions, and temptations, their secrets and crimes, come all within the range of your experience. In the serene atmosphere where soar and sing the great masters of human passion you may learn to live with an ever-broadening and ever-kindlier view of life, and acquire that charity toward the weaknesses of your fellows which for the better nature is the sure outgrowth of large knowledge of men, however learned.

This is not a lecture on literature; and were it that, it should be needless to point out what are the great books in prose or verse with which a thoughtful man ought to desire to be intimate. They are the books which have generated libraries of comment and criticism. They are the books which contain the flower, the fruit, and, too, the seed, of

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thought. Like those vast forms of stone, or god or king that sit among the desert sands of Egypt, they fill us with wonder, and tax alike the imagination and the intellect.

Learn, then, to know well some of these records of human genius at its summit of productive power. This is the best society a man can keep. Here are the best talk and here the noblest manners. Do not think of me as exceeding in my enthusiasm the limits of reasonable advice. In sickness, in trouble, in hours of vexation and days of disappointment, the greatest of our kind have found compensation and consolation in the company I recommend you to cultivate. I remember that one evening the late James Russell Lowell walked to and fro in my library. Now and then, pausing, he picked a volume from the shelves, glanced at its contents, and said pleasant, wise, or merry things of it or its author. It was as though he were answering some skillful talkers. It was like gay chat of which I heard but half. At last he said: "I wonder if young men comprehend what they miss in not learning to love the best books. Many times in my life," he added, "I have turned to them for help and distraction when everything else on earth seemed to be as dust and ashes. While a man has books he need never think of a monastic life as a refuge from moral disaster."

Lord Macaulay has left us an interesting poem in which he, too, records at a time of bitter disappointment what literature was to him, and what it has ever been to those who seriously apprehend its values and its possibilities of moral helpfulness. In imagination the fairies who endow the cradled child with gifts of fame and power and wealth pass him by, but one stays to give of her best. She who represents the love of letters leaves with him this gift, and says:

"Yes, darling, let them go: so ran the strain:
Yes, let them go—gain, fashion, pleasure, power,
And all the busy elves to whose domain
Belongs the nether sphere, the fleeting hour.

"Without an envious sigh, one anxious scheme,
The nether sphere, the fleeting hour, resign.
Mine is the world of thought, the world of dream,
Mine all the past, and all the future mine.

"Fortune, that lays in sport the mighty low,
Age, that to penance turns the joy of youth,
Shall leave untouched the gifts which I bestow,
The sense of beauty and the thirst of truth.

"In the dark hour of shame I deigned to stand
Before the frowning peers at Bacon's side;
On a far shore I smoothed with tender hand,
Through months of pain, the sleepless bed of Hyde:

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"I brought the brave and wise of ancient days
To cheer the cell where Raleigh pined alone;
I lighted Milton's darkness with the blaze
Of the bright ranks that guard the eternal throne.

"Ah, when on restless night dawns cheerless morrow,
When weary soul and wasting body pine,
Thine am I still, in danger, sickness, sorrow,
In conflict, obloquy, want, exile, thine."

This is a very real thing of which men like Lowell or Macaulay can so speak or sing. You do not need it to make dollar-winning more easy; many men great in our profession forever miss it; but, believe me, it is a thing to win with effort, and worth the winning. There are men who do not—never will—care for it, and there are some who care neither for nature, nor art, nor gun, nor rod, nor saddle. I can but feel a sort of mild pity for such people. Believe me, the more things you can put into life without doing harm to its definite duties the happier will it be.

It must often happen that whether you study natural objects or find in literature occupative change, some of you may be tempted to put in print your observations or your thoughts. Also, it is possible that among you may be one or two who have the power to say better in verse than in prose what they feel and think. Observe my words, "to say better in verse." If the thing cannot be said better in verse than in prose, then, by all the Muses, hold your tongue so far as verse is concerned; and in any case be certain that what you want to say is worth saying at all. But, whether you write prose or verse, do not let the pleasure of recording thought fill you at once with ambition to see yourself in print. The use of the pen is for many minds needed to give definition to thought. For me this has always been the case, and whether it be a mere literary statement or a problem in toxicology or medicine, it only grows clear to me on the written page, and perhaps only then after repeated efforts to put it in words. But be careful how, as medical men, you print anything. If you write something not medical, and think you have done a good thing, look at it in a year or two. The partiality of the mother for her first-born is but mere neutrality of preference compared to the young writer's affection for what he calls the offspring of his brain. Too often there may be grave doubt as to the legitimacy of these children. At all events, beware of the fatal audience of *one;* the *I's* always have it, and unanimity settles the question. Pray note that I think it a good thing to use the pen; but be wary of inflicting its product on others.

There is yet another and a graver reason why you should in your young lives consider literary product as but mental gymnastics.

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Rightly or not, the public, especially in small towns and the country, believes that a doctor should be that and nothing else. The feeling—the prejudice I prefer to call it—is fading away in great cities, where generally a man may do as he will if only he makes it sure and obvious to all men that the distribution of his energies does not affect his value as a physician. It were best to err on the side of caution, and to wait for larger personal freedom, until in early middle life you are certain of that professional success which, after all, is and ought to be the main object of your care. You will pardon me if I speak so often of myself, but the story, now well known, is worth the telling over. When I was yet young, being of opinion that I had written some good verse, I sent it to a Boston publisher, who agreed to print it. Then came a letter from Oliver Wendell Holmes in which he said that he had been asked by the publishers to read my little book. He wrote that, after some hesitation, he had resolved to give me a piece of unasked advice. He said that, having read my verse and being familiar with such medical papers as I had written, he thought he ought to say to me that I could not hope to succeed both in medicine and literature. He counseled me to withdraw the poems, to put them in a drawer, and to look at them again when I was forty years old. Not without a pang I took his advice.

With this too personal illustration, which I would readily have replaced by another had it been in my power, I draw to a close. I wished to show you how to make use of the variety of mental qualifications which one and another of you may possess. I wanted to point out how in their use you may avoid the evils which their exercise may bring to your careers.

I might have added a few words as to the morals of young physicians—as to the temptations which beset the hours of idleness—the coarser temptations, I mean—but no sermon can be complete. I prefer to leave to the preacher we all carry within us such obvious lessons as to these matters of moral conduct. I shall be well enough repaid for the easy labor of advice if, in days to come, in hours of trial and vexation, you return at times in thought to what I have now said, and find in its remembrance any help toward the successful conduct of righteous and wise living. In my next lecture I can promise to be more practical, because I shall deal chiefly with every-day questions of a professional nature.

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LECTURE II.

I HAVE long looked forward with pleasant anticipations to these talks with students. The reality has blocked my way with difficulties. There is so much to say. I soon saw that I must choose with care what to discuss, and risk the want of appearance of continuity. If all of you were to be town or country doctors my task were more easy; but some the navy will claim, or the army, and others will drop into special lines of work.

I shall try to remember only that you are all to be of the great army of medicine. First of all I own for you the wish that in this vast organized body you shall take honest pride. Through it you will earn your bread, and, I trust, much beside a mere living. That you may correctly estimate its splendid history, that you may fitly comprehend the opportunities it gives, let us look a little broadly for a time at some of its virtues and some of its values. I could wish that you were really taught something of the wonderful history of medicine.[1] I have, myself, ancestral pride in the splendor of its conquests, the courage and heroism of its myriad dead. I am fond of saying it is a guild, a fellowship, a brotherhood, older than civilization. It had a creed of moral life antique when Christ was born. No other organization is like it. Customs, code and creed separate the lawyer and clergyman of different lands, but we in all lands hold the same views, abide by the same moral law, have like ideas of duty and conduct. From Japan to London you may claim medical aid for self or wife or child, and find none willing to take a fee. There is something fine and gracious in this idea.

I once asked the care of a physician I never saw or heard of before in a German town. As I was about to pay him a card dropped from my pocket-book. He glanced at it, said, "But you are a doctor; I can take nothing—nothing." I remonstrated in vain. "No," he said, "you will make it up to some other doctor." I believe that I have paid this debt and other like debts with interest. I hear now and then of men who break this beautiful rule which makes professional service given by one physician to another a friendly debt for which the whole brotherhood holds itself responsible. Doctors are said to differ, but these bonds of union and generous amity are mysteriously strong. Try to keep them so, and when you serve medical men go about it as if they were laymen. Put away all thought of wasted time, of the commercial values of what you give. The little biscuit you cast

[1] This is now provided for in the four-year course of the University of Pennsylvania.

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on the waters will come back a cheerful loaf. I consider it a glad privilege to help thus my brothers in medicine, and let me assure you few are more heavily taxed than I.

And there is another privilege your profession brings. From the time you graduate until you cease to work, whether in town or country, hospital or wretched homes, the poor will claim from you help in their time of sickness. They will do it, too, with tranquil certainty of gracious service on your part.

The greatest of moralists has said, "The poor ye have always with you." I think he meant to speak of the poor as representing opportunities for self-sacrifice never absent. Of a certainty it applies to us. The poor we have always with us—the sick poor. The unthoughtful public believe that our easy readiness to give of our skill and time to the sick comes largely out of our consciousness that the experience won in this service is valuable. This is true, but not the whole truth. Experience is needed in the training for every form of work, but neither in law nor trade does a man expect to acquire capacity by calmly giving away time and skill after he has completed his primary education.

Imagine a law hospital where the highest talent is to be had without money by any man too poor to carry on a righteous law-suit.

There are none of us who do not do and have not done more in the unpaid care of the sick than was needful for our mental training. Whether we like it or not this service *is* essential to the young, and valuable at all ages. However harassing, however unjust in its excess, however absurd, try always to get out of it for yourselves and others all that you can. The virtues men affect become their own. An inexorable and noble part of our unwritten creed makes such charity so completely a portion of our lives that at last, even for the most selfish, it comes to have the unquestioned force of a mere bodily habit, and this is as it should be. The virtues which grow to be thoughtlessly habitual are none the less virtues. We tell the truth, are honest, are just, or punctual, because the qualities in question have grown to be a part of us. At last they exact no effort, involve no indecision, and above all no self-praise. And so it is that with us the gift of our mental and moral best to the poor becomes an unquestioned necessity of our nature. These onerous claims lessen as life runs on.

None altogether escape this form of charitable expenditure. But each virtue has its attendant evil. An eastern proverb says, "every angel has a twin devil." This constant unrequited service of the sick poor has its danger to character. I have felt it myself. I want you to feel it.

On every Friday I conduct the clinical out-service at the Infirmary

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for Nervous Disease. I never go through these long and tiresome hours of intense attention without feeling that it is needful to put some stress on myself that I be not negligent or hasty, vexed, or impatient, or fail as to some of the yet finer qualities of social conduct. I want you also to feel that such self-watchfulness is needed. These early years among the poor, or the class of uncertain debtors, are apt to make some men rude and uncareful, and ill-tempered. Most honestly do I say that such work is what I may call an acute test of character.

In this service a mass of little undermining, mean temptations assail you. When I have watched a young resident a year in my clinic, I know whether he will succeed or not. If he fail in the hospital, he will fail in life. It is a sharp test, I admit. Here are the sick poor, at times ill-mannered, surly, ungracious, ill-tempered, harassed by cares you know not of. There, too, are nurses; and there is the visiting M.D., with his exactions, and expecting you to know everything. In your early practice at home, away from wholesome criticism, you will go your way for good or ill, and become your own critic. Are you careful then or uncareful, conscientious or not, gentle, charitable, thoughtful or not, no one reproaches you with failure. Some sad day, in middle-life, you feel that your fellows have gone by you. You ask yourself, why? Alas! by that time you will have lost competence for self-criticism, and will conclude upon luck as your foe. An old friend of mine used to say some men always spell Luck with a P before it, and some without it. Observe, now, that I am but casting out hints, that I am pleading for the careful, early construction of habits now, here, at the immature age. That was a wise man who said:

> "Sow an act and you reap a habit,
> Sow a habit and you reap a character,
> Sow a character and you reap a destiny."

Before leaving this question of unpaid work, of which we do so much and learn to think so little, a word more as to one aspect of it.

I am doubtful whether any constantly unpaid work is always the best work. Note my phrase, *constantly* unpaid work. Experience won *is* our pay, says a public well content to be eased of the burden. But this applies also to the unpaid nursing sisterhoods, of whose devotion we hear so much. A queer, moral trap is set for some natures in all this; one may easily over-esteem what is one's pure gift. It is deeply human to conceive of devotion to pecuniarily unrewarded work as in all respects an insurance of competency. But sisterhoods do not give us better nurses than we get outside among the paid and

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trained. A vow does not exclude defects, moral or mental, nor convent or hospital shut out motives of this world. Nor, on the other side, does the fact that work is paid for deprive us of spiritual motives or the finer incitements to perfectness of method and manner.

The nobler the nature the more surely does the fact of wages add to the obligations of dutiful action. That you get a dollar for doing this or that surely does not exclude even the highest religious motives, and it adds a wholesome, earthy motive which may be base enough if you choose to put it before all others.

And, now, after this seeming digression, let us clear our way a little for its applicative uses. A part of your life-work consists in giving of your best to those who cannot pay. A part consists in work for honest wages. I think you happy in that our work is not altogether paid labor, and not wholly work without pay. In both are chances which, rightly used, make the good better, the wise wiser; and there are many sides to it all.

In a country like ours you will find, and not rarely, that by-and-by these poor who so cling to you are no longer poor, and that among them are some who rise with you in life. The other day a wealthy manufacturer who came to me with his grandson reminded me pleasantly that in our young lives I had given his family unpaid care for years, and then he added, "but I have tried to get even," and that was true enough.

I do not like to leave this subject without a living illustration. It is strange and interesting to see what our life does with different kinds of men.

I once went through a hospital ward in France watching the work of a great clinical teacher, long gray in the service of the sick. It was as pretty and gracious a thing as one could see. The examinations were swift, the questions few and ready. Clearly he liked his work. A kindly word fell now and then; faces lit up as he came near. Now and then he answered a patient gravely and simply where there was real reason to do so, and twice I observed that when he did this he sat down as if in no haste—a nice trait of gentle manners. It was a ward of women and he was very modest—a too rare thing in French hospitals in my student days. When he went away his interne told me that he had been very sharp with him for a piece of neglect, "but," said the young doctor, "he never says a word of blame at the bedside." In fact, this great physician was a gentleman—much-abused word—but think what that may fully mean: a man in the highest sense of manhood—so gentle, good old English word, that every little or large act of duty or social conduct is made gracious and beautiful because of the way of doing it.

I saw a week later a great French surgeon in his clinic for women.

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The man was as swift, as skillful as could be. He was also ill-tempered, profane, abrupt and brutally immodest—a strong, rough, coarse machine; and this was what the medical life had done with two men. With less intellect this rude nature must have altogether failed of success in life. He did not fail, being a man of overwhelming force and really admirable mental organization; and so when you read of Abernethy's roughness and the like, pray understand that such great men as he win despite bad manners, and not because of them. There is no place where good breeding and social tact—in a word, habitual good manners—are so much in place as at the bedside or in the ward. When Sir Henry Sidney wrote a letter of advice to his son—the greater Sidney, Sir Philip—he said, "Have good manners for men of all ranks; there is no coin which buyeth so much at small cost." The too common trouble as to this matter is that men who lack really good manners seem to be wanting in knowledge of their own defect. The finer nature has the more delicate social conscience, and is swift to feel its own wants or mistakes. You are now at the age when the school of social conduct closes. No one says "don't Bill," or "Tom;" no one now says you were right as to this or that, but the manner of the doing was ill and hurt your purposed efficiency. Be, therefore, in your young lives most watchful, yes, and most thoughtful, as to this matter.

A clever woman of the world once said to me: "I sent for Dr. A. yesterday, and by mistake the servant left the message with Dr. B. He came at once, and really he was so well-mannered and pleasant that I quite forgot what a fool he is."

I know men who have had large success in practice chiefly because of their gentleness and sweetness in all the relations of life. I know of far more able men who have found life hard and the winning of practice difficult simply because they lacked good manners or wanted tact. We began about the poor, and here we are discussing manners. I had not meant to say of it so much, but on the whole I am not sorry. Pray remember, finally, that neatness of dress and the extreme of personal cleanliness are, shall I say, a sort of physical good manners, and now-a-days the last words of science are enforcing these as essentials of surgical success.

Let us turn aside from these questions. I presume you to be placed with hope of practice in town or country, and here again I am puzzled how to choose the points on which I want to advise you. Let us look at the health question first. There is no success for you without health. The energy of full vigor makes itself felt in our work as in no other pursuit. I have often felt that. Sometimes the energy has gone out of me. The English say to become a Lord Chancellor a man must have the three B's—Back, Belly and Brains. Vigor, good digestion, intellect. Into your lives will come loss of sleep, irregular

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hours, delayed meals and daily worries. As to these latter they are as sand in the machinery of life. "Learn to laugh, and you are your own doctor," say the Turks. A natural sense of the humorous is an unusual help. I hope you have it. But if you cannot acquire that gift of the fairy nature you can at least learn cheerfulness, and by habit to cease to think of your bad cases more than their problems demand.

Our open-air life is a great safeguard. We suffer little from neurasthenic conditions, despite the seemingly unhealthful conditions which surround us.

But try to get, while young, some daily active, violent use of your muscles. For the country doctor the back of the horse is available, and as Lord Palmerston said, the outside of a horse is good for the inside of a man. Try soon to get every year a little divorce from all your physical and social surroundings. I have a prejudice in favor of the rod or gun. But whether in canoe or afoot be sure that a little wood life, away from all you know, is what the Indian calls "great medicine" for mind and body. There is a strange moral influence in the life. You come back better, wiser, innocently sweetened all over, and by lake or river you forget and forgive with natural ease. I think that doctors are apt to be a little reckless as to their own risks of disease. They have seemed to me to share the popular belief that in some mysterious way we are guarded from contagion. Nothing could be more foolish. Never be ashamed to take reasonable precautions.

I have myself twice taken diphtheria from patients, and once small pox. I think my own maladies taught me some good lessons, and few of you will, I fear, quite escape such opportunities of knowing disease from the standpoint of the patient. The records of typhus and yellow fever epidemics tell a sad tale of such disaster in our ranks, and I may add that in the great civil war surgeons suffered death and wounds in equal proportion to line officers of the like ranks.

Be reasonable, therefore, in your care of yourselves. There comes a time now and then when we want the most sturdy health—for the battle with epidemics, or for the honest wrestle to save some single life. Then, as in war, all questions of convenience, safety, ease must disappear before the unquestioned call of duty.

Among country patients and doctors a certain amount of friendly relation and more or less familiarity is apt to grow up. In cities this is less certainly the case. "As a rule," said a wise physician to me, a young man, "you will do well to let your patients be friendly, but be yourself careful how you make friends of them." Whim, caprice, accident, absence, cause them to leave you for another practitioner. You will not like it, no man does, but, if you are personally attached to them the pang will be sharper. Any large practice in a great city is continually changing. Patients leave you, others come. Another

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man who complains to you of his patient leaving him for Dr. A. or B., will always seem to you a little childish. Take care. There is nothing in life more valuable than a true sense of the ridiculous applied to ourselves. When a patient leaves you, try to see why you failed to hold the case or family. If it was not through negligence or want of earnest care, do not let it annoy you or disturb your relations to them, or the more lucky doctor. But be honest in your self-examination, and remember my old doctor's advice—don't try to make friends of patients, and do not get to think you own the sick man. I scarcely ever go for consultation to a village that I do not find some little bickering among the doctors. Most of it comes out of loose talk and critical comments, or from loss of cases who go here and there and leave you. Let me beg of you finally, now in advance of these incidents, and they come to all, to resolutely accept them as a part of the changeful fates of life. Try to look down on life as a whole. How its smaller calamities affect your character is of far more moment than how these for a passing hour influence your material fortunes. Guard too your own tongue. I saw over an inn in the Tyrol in the queer old Romansch dialect these words, "Critica ast facile." To find fault is easy. Yes, it is very easy, and it is something else.

There is a wise proverb of the East, "He who holds his tongue for a minute is wise with the wisdom of all time." I am fond of proverbs, and this is full of meaning, for really to refrain from instant speech when irritated is victory. An hour later you are sure to be silent enough. The temptation to speech is momentary. Above all, try not to talk of your patients—even with doctors. It is usually a bore to be told of cases, and we only stand it because we expect our own boring to be in turn endured. But my ideal doctor who reads, thinks, and has a hobby will not need to gossip about patients. He will have, I trust, nobler subjects of conversation. When I hear a young man talk cases or read them in societies with heavy detail of unimportant symptoms I feel like saying of him, as was once said in my presence of one who amply justified the prediction, "That man has a remarkably fine foundation for dulness in after life."

The life and ways of a country physician make it rather hard for him, as his days fill up, to do all the reading he should do, but if in town or country you were to be let into the whole life of a man you would always find more unused hours than the lazy care to admit as existing. I have all my life wondered how doctors, even the busy, fill up all their time.

For the country doctor there is most excuse. He has to know so much. He has to rely so completely on himself. As a result, the best country physicians are better all-round practitioners than the up-and-down town men of cities, who can in an hour of doubt find counselors close at hand.

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In any case, no matter what may come to excuse later deficiencies, begin and try to continue a system of notes of cases. Their value comes to be immense—their value to you I mean. Index them as to names and diseases. At the close of a case read it over and make comments. As regards the odd and curious, keep a special index. As time goes on the accumulated knowledge as to individuals and families gathers value. I saw a few years ago a case which had puzzled a friend. I turned to my notes of twenty years ago and found in the dead father's case a story of syphilis, which brought clear.light into a difficult consultation. If the whole medical story of successive generations could be kept, how strangely interesting it would be. I have myself several thousand records of my cases, and every now and then some one turns up whose history of years ago is in my books.

The methods of note-taking you are well taught, and, too, I hope, the best ways of examining your cases. As to this, circumstances must guide you. A patient is often a bad witness, and one man gets at the truth of his case, another does not.

As to acute cases, it is immensely valuable to learn through concentration of attention to be rapid without omissions. Dr. Edward Dalton is quoted as saying to his class, "After careful and repeated auscultation, percussion, palpation and even succussion of your patient for twenty minutes, *you* may not be very tired. *He* is."

As you go on in practice you will get to be fond of certain drugs. Be a little careful of this habit, which has its reasonable side. Even the best of us fall into this therapeutic trap. I once met in consultation the late Prof. Blank, a delightful and most able physician. As I came out of the house I fell upon his son, also a doctor. "Ah!" he said, "you have been meeting my father; I am sure he advised Plumer's pills"—an old mercurial preparation. It was true.

As I watch the better medical practice, I see a tendency to rely less upon mere drugs, and more and more sharply to question their value. The true middle course is to be skeptical as to new drugs, and to test them over and over before being mentally satisfied. Nor is it well to run into the extreme which in our civil war caused an order forbidding the use of calomel because of the folly and indiscretion with which a few men had used it. After all, one of the most difficult things in ours, the most inexact of sciences, is to be sure of the value of a drug. When studying the poison of serpents I found the most positive printed evidence of the certain value of at least forty antidotes. Not one of them was worth the slightest consideration. Such a fact as this makes one careful of crediting the endless cures to be read in the journals.

When you come to read over the works of the great masters, dead or living, and to see how Sydenham or Rush, Cardan or Bright, did their work, you will be struck, as I have been, with the great stress

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laid upon habits of living, what shall be eaten, diets, exercise, clothing, hours of work and rest. Curiously enough, these dicta are more often found in their records of cases than as positive theses; a proof that, in his practical work, a man may be better and wiser than in his generalizations. When, therefore, you come to deal with chronic conditions, be sure to learn all there is to learn as to the ways of men, their diet, clothing, sleep, work, play, wine and tobacco. I like to make a man describe to me, with minute care, his average day. Then I consider, usually, how much of what is clearly wrong may be set right by a life on schedule. After that comes the considerate use of drugs.

The desire for drugs is a remainder from barbarous times. It is much in the way of what I call natural medicine. *Do* this and do *not* do that, might cover a large amount of useful treatment if men would but consider the doctor as a wise despot to be implicitly obeyed. But just here I wish to add that the very men who are most chary as to drugs are those who, at times, win splendid therapeutic victories by exclusive diets, or heroic use of powerful medicines.

Much nonsense is talked about the injurious influence of drugs until, in the very word drug, there is a malignant sound. Men used to be over-bled or salivated. This does not occur now-a-days. And if I asked your whole faculty how many people they have seen permanently injured by mere medication, I fancy they might be puzzled to bring to mind illustrations of such mischief. The belief is another survival of conclusion founded on premises which perished long ago.

I pause for another word of caution. Let me entreat you to be careful as to narcotics. Never leave to a patient the freedom to use them at will. They are too often the easy resort of the lazy doctor. Pain is a sad thing, but be sure that the frequent use of opiates mysteriously increases the future capacity to feel pain. Nearly always the attendant physician is in some way to blame for the opium habit. Above all, be careful in your own households. Few winters pass without bringing to me three or four morphia cases in doctors' wives. Certainly it is a sore thing to see the pain of those we love; the temptation to give instant relief is great; affection is a poor consultant. You yield, and at last a habit is made, and the more easily because the drug is too readily at hand in the homes of country doctors. The moral is, do not attend the sick in your own household. There are many reasons why it is unwise. Save as to these matters doctors are the best husbands in the world.

Men in our profession fail more often owing to want of care in investigating cases than for lack of mental power. There are exact sciences and inexact sciences. If ours be a science at all, it lies among the inexact. Try, then, always to be as exact as possible. Let me show you what I mean. Let us take for illustration the urine, and

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suppose the case a difficult one. Is the patient gouty or lithemic? One man looks at the urine carefully once and decides; another looks once at the night and morning water and concludes; a third asks that there be made no change in diet or habits for a week, and examines the urine over and over, both the night and morning secretion. Of course, this is the only right way. Troublesome? Yes, very! If you do not want to practice medicine as it ought to be practiced, better far to get some business which will permit of indolent intellectuation.

A friend of mine had a consultation in the country as to a case of great importance. The attendant fell ill and could not meet him. My friend went over the case with care. It was one of persistent headache. He took home urine of the night and morning, and wrote word that the patient had uremic toxication. The attendant said "No; that neither casts nor albumin were in the urine which he had thrice examined." At last, puzzled, my friend asked if he had studied the night urine. He said "no." And here was the mischief.

I saw to-day a woman of wealth and social importance, who for years suffered cruelly from headache. Now, as it always began after an hour of very acid vomiting, a dozen of the ablest men in Europe and America, who were led off by the vomiting, failed to take in the whole possibilities, and did not question the eyes. But a little country doctor did, and a tendon or two clipped put that woman back into a state of health. I was one of those who made the mistake, and yet I have written, was perhaps the first to write on the eye as a cause of headaches of varied type. But to be constantly complete and exact in all examinations is, I admit, hard; nevertheless, that way lies success.

And the like axiom applies to treatment. You are taught in acute disease to write your directions and to leave no possibility of change unprovided for. And the acutely ill are prisoners of our will. But how many men think it needful to write out a schedule of life, medicine, diet, exercise, rest for cases of chronic disorder, I do not say disease. I never tire of urging that in attention to minutiæ lies the most certain success. A large practice is self-destructive. I mean that no over-busy man can continue to give always, unfailingly, the kind of care patients ought to have. But that is as I said in my first lecture, a question of enduring energy, and of the firmly made habit of dissatisfaction with the incomplete. If medicine consisted only in mere intellectual endeavor; if to see, hear, feel, weigh, measure, in a word, know all there is to know of a case, were really all; if then we only had to say do this or that, one's life might be sufficiently easy.

In time of peril, or under stress of pain, any one, and always the great consultant, can secure absolute obedience. In the daily current of practice, fancy and unbelief, indolence, prejudice and what not,

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stand in our way. Busy men, indulged children, hysterical women are your worst difficulties. Then come into play the moral qualities which, in union with educated intellect, make for the triumphs of the great healers of their kind. Are you gentle, and yet firm? Have you the power of statement, which is so priceless a gift, the capacity to make the weak, the silly, the obstinate feel as you speak that your earnestness rests on foundations of kindness, and of thoughtful investigation of their needs? Can you, in a word, make people do what you want? Have you the patience to wait, untroubled by the follies of the sick, to bide the hour when you can carry your point? Have you the art to convince the mother that the sick child is the last of all who should be left to the misery of self-indulgence? Can you sit by the bedside and gently satisfy some hysterical fool of her capacity to take up anew the reins of self-government? It demands earnestness. It means honest beliefs. It exacts such rule over your own temper, such good manners as few possess in their highest degrees of quality and quantity. Above all, it means that dislike of defeat which makes the great soldier.

A fine thing in our profession that mere hatred of defeat. As I came once out of a consultation with Prof. Gross, he said: "Don't you hate it, sir?" "Hate it; what?" I said, "hate what?" "Oh, to spend a life like yours or mine, and be beaten—puzzled—licked, sir—by a miserable lump in a woman's breast." I always liked what General Sheridan said to me years ago. I asked how he accounted for his constant success in war. He hesitated and then replied: "It was because I did so hate to be licked." No matter whence comes this feeling, it is valuable. Cherish it; never lose it. Find reason for disaster, but learn to loathe the result. I never see a death or a grave failure to cure that I am not personally hurt by it. I say then, "a century hence this will be otherwise," for, as I am proud of the past of this great guild, so am I full of glad hope for its future, when it shall have learned the conquest of cancer and tubercle.

I have come again half unexpectedly, as I draw to a close, upon this grave question of the moral qualities needed for the noblest success in medicine. It would lead me, and easily, to talk of the code, of your relations to the secrets of households, to the criminal law as to witnesses, of insurance cases and the like, but all of this I must leave unsaid and reject the pages in which I had said something of the ethics of our profession.

You have chosen a life inexorably hard in what it asks of soul and mind and body, but be that as it may, you have taken upon you, I surely think, the most entirely satisfactory of earthly pursuits. I have seen much of men and their ways, but nothing I have seen entitles me to think there is any truer, better way of serving God and man, and in this service making yourselves what you ought to be.

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THE PRESENT POSITION OF THE HYPODERMATIC METHOD IN THE TREATMENT OF SYPHILIS.

By J. William White, M.D.,

Professor of Clinical Surgery, University of Pennsylvania; Surgeon to the University, German and Philadelphia Hospitals.

[concluded from page 605.]

The opinions of a few leading syphilographers expressed within the last five or six years will show that, to say the least, the method is still on trial. Kaposi[1] says that only where inunctions are impracticable should injections be used. He had previously[2] stated his belief that "in both efficiency and safety the employment of subcutaneous mercurial injections must be placed below inunctions," so that his later opinion was evidently not reached hastily.

Neumann,[3] after a careful discussion of hypodermatic medication in the treatment of syphilis, states that, from his experience in about 500 cases in his clinical practice and a large number of private patients, hypodermatic injections should be tried *when the inunction treatment has failed.* Neither injections with the soluble nor insoluble compounds of mercury prevent the recurrence of syphilitic symptoms. When used as a preventive treatment, they are simply able to retard, for some weeks, the constitutional symptoms, with the exception of the ganglionic enlargement, which is never prevented. They are not especially efficacious in grave forms of syphilis, particularly brain manifestations of the disease. Retinitis and iritis are not materially benefited; inunctions have frequently to be substituted for injections when these complications appear.

[1] Internat. Klin. Rundschau, Vienna, April 17, 1892.
[2] Wiener Med. Presse, June 8, 1890.
[3] Die Therapie an den Wiener Kliniken, 1891.

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Neisser[1] says: "I regard inunctions as the best means of obtaining the antisyphilitic effects of mercury."

Kreis[2] reviewed the whole subject, and recommended inunctions as giving the best therapeutic effect with the fewest accompanying disturbances, citing von Zeissl, von Sigmund, Lang, Leloir, Kaposi and Neumann as supporters of this view. He adds that they have effected cures "when the hypodermatic injections have failed," and says further "that the latter, in view of the uncertainty of their action, are not to be recommended."

In Paris, Besnier, after giving the method a full trial at the St. Louis, abandoned it. He says that all the facts point to the recurrence of syphilitic symptoms after the alleged "cure," and cites cases of his own, in one of which a patient, in the height of his secondary stage and only twenty-six days after the last five injections of calomel, had a specific meningitis, which only yielded to drachm doses of potassium iodide.[3]

Fournier,[4] about five years ago, was asked his opinion by Dr. Morrow, of New York. He answered: "My opinion is that it is not a good treatment. The injections are painful, they interfere with the patient's avocation, they necessitate frequently repeated visits. Above all, the method is not practicable. In private practice patients will not tolerate it. In hospital practice it is possible, but note the result. Patients leave the Du Midi and Lourcine, where this treatment is employed, and flock to the St. Louis, where they know they will not receive it."

The same writer says two years later:[5] "Fournier is not a partisan of the method of subcutaneous injection either of soluble or insoluble preparations of mercury. He relies upon the digestive and the epidermic routes for the introduction of the drug, giving the former the preference in the great majority of cases."

Still two years later,[6] Fournier said: "As far as possible we should spare our patient the inconvenience of these injections, which cannot take the place of other methods in the routine treatment of syphilis."

Brocq, after a critical review of the situation, arrives at the same conclusion.[7] Hallopeau[8] considers the method dangerous and its alleged precision illusory. Diday,[9] under the fanciful title, "A black

[1] Deutsche med. Woch., January 3 and 10, 1884.
[2] Med. Correspond. Blatt des Wurt. Arzt. Landesverein, March, 1891.
[3] Journ. of Cut. and Genito-Urin. Dis., Vol. V, 1887, p. 443.
[4] *Ibid.*, p. 349.
[5] Journ. of Cut. and Genito-Urin. Dis., December, 1889.
[6] Rev. Gen. de Clin. et de Therap., 1889, p. 17.
[7] Gaz. Hebd. de Méd., 1887, p. 615.
[8] Bull. Med., 1888, p. 1113.
[9] *Ibid.*, 1888.

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point in the gray oil," adds his testimony as to the dislike of patients for this treatment.

Mauriac[1] says that the curative effects of the injections of calomel are not superior to those obtained by the internal administration of the salts of mercury. He adds: "I have not found, up to the present time, any advantage in this method, and it presents, if not dangers of a serious nature, at least quite sufficient inconveniences to prevent me from adopting it; it does not at all prevent recurrences. The general and vague assertions that we have no recurrences after the subcutaneous injections, or that we have less than with other methods, are disproved by facts. I maintain that they are quite as frequent. At least, this has been my experience in the trials I have made."

Vidal[2] has seen patients submitted to this treatment return after a brief delay with most characteristic symptoms of syphilis.

In England, Hutchinson, who is *facile princeps* the leader of British syphilographers (and who, in my opinion, is, with the possible exception of Fournier, the leading syphilographer of the world), says: "Hypodermic injection has come but little into employment in English practice, nor does it appear to increase in favor with those Continental surgeons who at one time thought highest of it."

In this country, Taylor, so far as I know, voices the prevailing sentiment among specialists in this branch when he says: "The extent of the literature of hypodermic injections in syphilis contributed within the past ten or twelve years is simply appalling, and there is really very little which is of practical value. It will be seen that almost every preparation of mercury has been experimented with in the hypodermic injection treatment, and that the chemist's art has been sorely taxed to produce new preparations. Each new preparation has been exploited as the ideal of perfection, and in most cases a hearty welcome has been accorded it, so that a witty German reviewer has made the following paraphrase of an old maxim applicable to the subject: 'De novis nil nisi bonum.'"

As to the injection of insoluble preparations, he says he has no leaning toward its employment, and that he is firmly convinced that it will never be used as a systematic treatment extending over a period of years. He adds: "It is a treatment which is generally irksome and repulsive to patients, always attended with more or less discomfort and pain, and often producing destructive subcutaneous lesions over the body, which cause mental and physical suffering, and which of necessity must impair the patient's health and strength. In some cases we have seen it has been known to imperil and to destroy life."

[1] Journ. of Cut. and Genito-Urin. Dis., Vol. V, 1887.
[2] *Ibid.*

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The soluble preparations he uses, as do most of us, under various limitations, which will be presently discussed.

In a more recent communication to me Dr. Taylor reiterates his preference for the bichloride as the best preparation for hypodermatic use, and states his belief, in which I cordially agree, that it is a method of "utility, exigency and emergency." In the presence of intercurrent disease, as of influenza, he has found it most valuable, and has occasionally used it for long periods. He adds: "No importance should be attached to claims of speedy cure. They show that their sponsor knows little about the natural history of syphilis. The disease is chronic and far-reaching, and requires a corresponding treatment. Many men, who have ransacked drug stores and importuned chemists for some ideal preparation of mercury, having got one to their notion, have used it for a short time, and seeing the prompt disappearance of existing lesions (which condition could be induced by the bichloride, bicyanide, or salicylate of mercury), have rushed into print and claimed marvelous and rapid cures. You and I both know that a thoughtful and experienced student of syphilis will only claim cures when the patient has undergone careful, watchful treatment for two years and more, and when from the course of the case he is satisfied that the disease has been brought to an end."

A review of the present position of the method in the hands of the American syphilographers shows a remarkable unanimity in the belief that the hypodermatic medication is not destined to take the place of other methods in the routine treatment of syphilis. The subjoined extracts from letters received during the last two weeks from the members of the American Association of Andrology and Syphilology, and from well-known dermatologists, cannot fail to be of interest at a time when the advocates of the method are rather trying to force it upon the profession. I have arranged them alphabetically:

Dr. L. B. Bangs, of Brooklyn, says: "I instituted some experiments a few years ago in private practice and in my service at Charity Hospital, which satisfied me that the hypodermatic method of treating syphilis was so rarely useful as to be valueless. Moreover, the claim that it 'cures syphilis in a much shorter period, etc.,' will not hold, for in my opinion it takes just about so long to 'cure' the disease, whatever may be the method of treatment employed. The effect of hydrarg. upon a symptom can be obtained by the other methods with no pain and with less risk than by the hypodermatic method."

Dr. W. T. Belfield, of Chicago, says: "I gave up the hypodermatic medication of syphilis some time ago, because unable to convince myself of its advantages over less painful and more convenient methods of administration."

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Dr. Charles F. Bevan, of Baltimore, says: "Regarding the hypodermic use of mercury in the routine treatment of syphilis my experience is not very satisfactory. The strong tendency to local annoyances and the severe pain often experienced are decided objections. I am inclined to believe the physiological effects of the drug may be produced somewhat more quickly than by oral ingestion, but are not more lasting. The absolutely curative effect by the hypodermic method in my hands has not been equal to that from other methods. It is a mode of treatment that should be reserved for some special and exceptional cases."

Dr. George Emerson Brewer, of New York, says: "My experience in the treatment of syphilis by the hypodermatic administration of mercurials has been extremely limited, owing to theoretical objections and a failure to discover any advantage whatever in the cases in which it was employed. My theoretical objection is that the daily dose which the patient receives is dependent upon the amount of absorption which takes place and upon the careful adjustment of the dose to each individual case."

Dr. F. Tilden Brown, of New York, says: "I have had no personal experience with the hypodermatic injection of mercury in the treatment of syphilis. I have waited for better assurances of its advantages, or positive assurances of its being a fair substitute before making tests myself."

Dr. E. C. Burnett, of St. Louis, says: "Ever since the revival of Scarenzio's hypodermic use of calomel in the treatment of syphilis I have studied the reports from the advocates of this method, and I have been unable to convince myself that the results justify the use of it as a systematic mode of treatment of syphilis. Understanding that the employment of this method by its originator and those who came immediately afterward was first suggested by those severer cases in which the cutaneous application of mercury was contra-indicated, and the ingestion by the stomach unsatisfactory, I have always held this as a last resort to be used only under such conditions. During ten years of experience, both clinical and private, I have not as yet failed to relieve my patient, no matter how severe the phases of the disease, by the judicious management of the regular methods and with a minimum amount of discomfort to them. Aside from its possible utility under the conditions above mentioned, I can see no well-grounded reason for the employment of this method in the systematic treatment of syphilis. I believe such a use of it to be entirely unnecessary. I also believe that the claim that it cures the disease in a shorter time is unfounded, for why should the manner of the introduction of mercury into the system have an effect upon its ultimate therapeutic action when its physiological and pathological actions are known to remain the same."

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Dr. Charles McBurney, of New York, says: "I have been always well satisfied to administer mercurials by the mouth and by inunction. In my opinion the danger of causing even serious disturbance in the connective tissue by injection is considerable, and I have known very disagreeable results to follow the application of this method. I cannot believe that it has any advantages which can balance the dangers—if it has any advantages at all."

Dr. A. T. Cabot, of Boston, says: "I cannot give you any personal experiences on the subject, as I have never used mercurials in that way, having always depended upon inunctions and the administration by the mouth."

Dr. P. S. Conner, of Cincinnati, says: "I have seen no results following injections in any respect superior to those following ordinary internal use of the iodides and mercurials, and have been so little pleased with the method that I do not employ it."

Dr. L. A. Duhring, of Philadelphia, says: "There seems to be but little to commend the practice and a good deal, viewed from a practical standpoint, against its adoption as a mode of treatment for the average cases of this disease. I therefore would express myself as much preferring the methods by the mouth and by inunction."

Dr. J. A. Fordyce, of New York, says: "Some years ago, at Hot Springs, I instituted a comparison between the treatment of syphilis by hypodermatic injections and inunctions, and was so strongly convinced of the superiority of the latter method that I ceased to use injections. As a matter of routine, I, at present, give mercury by the mouth, or, when I desire a rapid effect, employ inunctions."

Dr. G. R. Fowler, of Brooklyn, says: "The method of medication in question has always seemed to me unscientific, or, to say the least, far-fetched. It has never appeared to my judgment to be a practical method when compared with that by the stomach and by inunction. It certainly involves some suffering on the part of the patient, and probably some dangers. I have yet to learn of sufficient advantages from its employment to compensate for its palpable disadvantages. It has not yet awakened, in my mind, sufficient enthusiasm to give it even a trial."

Dr. Algernon S. Garnett, of Hot Springs, says: "In my hands the hypodermatic treatment was abandoned for the following reasons: (1) The pain incident to the frequent use of the needle, and the accompanying inflammation due to the introduction of the mercury into the cellular tissue. (2) The uncertainty in regulating the *individual* dose. (3) The great difficulty in prolonging the treatment, where the tolerance of the drug is great, without perforating large areas of the skin. Where absorption by the skin and stomach has failed, this

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method might constitute the only safety for the patient, but such cases are rare and exceptional.

"My experience has been that patients too often get the local disturbance before the constitutional impression, and that the system has to be educated to the tolerance of a sufficient quantity of the drug if we would give protection for the future."

Dr. W. F. Glenn, of Nashville, says; "When Lewin first advocated this plan I adopted it and used it considerably. My opinion may be briefly summed up as follows: (1) I found it very difficult to persuade patients to allow its use for any length of time on account of the pain attendant upon the injections and the ulcers sometimes produced. (2) I did not think it proved more beneficial in ordinary cases than mercury by the stomach. (3) In malignant cases, where a quick, decisive action of the drug is desired, I believe inunction equal if not superior to it. (4) I have never seen the hypodermic treatment cure a case of syphilis in any shorter time than inunction or ingestion. (5) I believe that mercury given in any manner will require at least two years to accomplish the cure of syphilis, and in many a longer time."

Dr. Hingston, of Montreal, questions the value of mercury in syphilis, but says he sometimes prescribes it, and adds: "I then prefer it by the mouth and, more still, by inunction. My experience in the employment of mercury in the form of hypodermic injection is extremely limited, but I am not disposed to give this latter form preference over the older methods, while its indiscriminate use in the routine treatment of syphilis is open to many serious objections."

Dr. James Nevins Hyde, of Chicago, says: "I can say but very little on the value of the hypodermatic injections of mercurial preparations in the treatment of syphilis, because of a limited experience. I have watched with some care the results of this treatment on the continent of Europe; I have also treated the method in both hospital and private practice at home. But with me it stands in the category of 'last remedies,' and in syphilis I do not have to recur to last resorts sufficiently often to know much about them.

"I am not a pessimist but an optimist in all questions relating to the treatment of that disorder. I have, as we all have, seen the most formidable damage done in cases where the expert, watching the course of the disease from the very beginning, has had neither time nor opportunity to avert the consequences by the best of treatment and the greatest skill. I do not believe that in the worst of these 'galloping' and 'precocious' cases, as our French brethren call them, even the most energetic treatment will avert the results.

"I also believe that the enormous majority of all our other cases do very well indeed under our present methods of safe and slow treat-

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ment by inunction, fumigation and medication by the mouth. I believe that more than 75 per cent. of our American patients, under the treatment of our best physicians, escape tertiary symptoms. I am, therefore, in no haste at present to exchange for a method which is not without danger others whose success compares very favorably with that obtained in the scientific management of other ailments of the human body."

Dr. William Judkins, of Cincinnati, says: "My experience with the hypodermatic method of treatment of syphilis is by no means satisfactory. I could in no one case continue it long enough to have what might be called 'a cure,' as abscesses would invariably form at point of introduction (causing many to take their meals standing). In one case, in spite of all known precautions, cellulitis followed with suppuration, leaving a scar the size of a silver quarter. Fortunately it is so situated that she rarely sees it, but the case, with others of less severity, decided me to abandon its use now some time since. Considering the manner in which it was so highly commended, so much to be expected from its use, the results in my hands have been exceedingly disappointing."

Dr. Edmund E. King, of Toronto, says: "I have used hypodermatic injections very little. I believe their results to be misleading. I do not think it *cures*, but that in some cases it is a powerful adjuvant, and brings the symptoms more rapidly under way, which permits systematic treatment a surer and quicker grasp on the case. I think, however, that it is a delusive treatment both to the doctor and patient."

Dr. E. L. Keyes, of New York, says: "(1) I do not think the hypodermatic use of mercury suitable for routine use in syphilis; (2) I believe it impossible to *cure* syphilis by a *short course* in this or any other method."

Dr. C. H. Mastin, of Mobile, says: "I can say, without the least hesitation, that its use has never commended itself to my mind; that I believe its advantages have been *greatly overestimated;* that its inconveniences and dangers have not been fairly stated, and that it offers no advantages over mouth ingestion or the method of inunctions. In a word, I have been and am opposed to its use, considering it an innovation with no rational basis for its support."

Dr. Prince A. Morrow, of New York, says: "I do not recommend the hypodermatic method in the systematic treatment of syphilis, nor do I believe that it will ever supplant the classic modes of applying mercury. I look upon it as a *reserve* treatment to be employed in exceptional cases, as, for example, when gastro-intestinal irritability is so marked as to forbid the introduction of mercury by the stomach, or where the necessities of the case demand a rapid and intense mercurialization to save important organs, etc."

Dr. H. G. Mudd, of St. Louis, says: "Personally I am not pre-

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pared to speak on the value of hypodermatic injections in this way, for I have depended almost entirely on inunctions and the internal administration of mercury in the systematic treatment of syphilis. Without having had much experience, I have been rather afraid of the hypodermatics of mercury."

Dr. W. K. Otis, of New York, says: "I desire to express myself as decidedly opposed to the treatment of syphilis by means of the hypodermatic injections of mercury in any form: (1) Because I believe that the patient can be brought under the mercurial influence more safely, comfortably and satisfactorily by other methods; (2) That it is unsafe, for should symptoms of salivation appear, it is impossible to withdraw the drug, it being beyond control the moment it is injected; (3) That this method is more uncertain in its effects; (4) A certain amount of danger of producing abscess.

"In regard to the assertion that this method 'cures' syphilis in a much shorter period than others, it seems to me that only a very large experience, extending over a period longer than this method has been in existence, would establish this fact clinically, while theoretically I am inclined to doubt that such is the case."

Dr. E. R. Palmer, of Louisville, says: "I am absolutely without personal experience in the hypodermic treatment of syphilis, but have watched the subject-matter sufficiently to fully convince myself that there is nothing in it."

Dr. Roswell Park, of Buffalo, says: "I have never resorted to hypodermatic use of mercurial preparations as a routine treatment. I have adopted this method only in severe cases or those where symptoms were of speedy occurrence and seemed to call for the liveliest possible impression, or in rare instances where the system was intolerant of other methods.

"The method has never seemed to me one which would commend itself in this country, or one which could rationally be expected to find general adoption either among the profession generally or the laity. I have no personal experience as to whether it can 'cure' or is capable of curing syphilis more quickly than other methods."

Dr. A. W. Stein, of New York, says: "I employed the hypodermic method at Charity Hospital years ago on a series of cases, and discontinued it because I saw no appreciable difference from the other methods of treatment."

Dr. Henry W. Stelwagon, of Philadelphia, says: "Some years ago while studying in Vienna, the method of treating syphilis by hypodermatic injections was being extensively practiced in the General Hospital, more particularly in Sigmund's wards. I was impressed with the cleanliness of the method and also with the exact measure-

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ment of dosage thereby made possible, but its evident disadvantages, such as pain at the point of injection sometimes lasting several hours or days, with often the production of an inflammatory cherry- to walnut-sized, deep-seated swelling, and not infrequently abscess formation, completely overshadowed, in my judgment, its few merits. In the light of experience, bearing the above observations in mind, I believe that an existing eruption may be made to disappear more rapidly by this method, but doubt very much that it has any advantages as to permanence of effect. In my own practice, covering about ten or twelve hundred cases of cutaneous syphilis, I have never felt called upon to go beyond the methods of treatment by mouth ingestion and inunction, except in one instance, a young man with a marked syphilitic cachexia and a malignant, general, large pustular syphilide, whose stomach rebelled against the drug and whose full digestive power was needed for nutritive repair, and whose condition of skin necessarily precluded the method by inunction."

Dr. F. R. Sturgis, of New York, says: "It is many years since I have used the hypodermic injection of mercury in the treatment of syphilis, and my reason for abandoning it was the great pain it caused, and the tendency which it had to produce abscesses in the cellular tissue. Indeed, the pain was so great that the charity patients at the hospital ran away rather than submit to the treatment. That it was in many cases efficacious I have no doubt, but I do not think that the advantages outweighed the pain, nor was its action any more certain and lasting than when mercury was given by other methods. I am very doubtful indeed if it cures syphilis in a much shorter period than when given by the mouth, or inunction or fumigation, although in some cases it caused the symptoms to disappear a little more rapidly, perhaps, than they would have under other circumstances. The preparations used were the bichloride, which was excessively irritating, then, afterward, calomel, which was less so, and lastly, the albuminate, which seemed to be the best borne of any; but, as I say, I have not used it for many years, and think its use, certainly in private practice, is restricted."

Dr. James P. Tuttle, of New York, says: "My experience is confined to the use of the mercuric chloride, having never used any of the other salts by this method. In cases where an exceedingly rapid mercurial impression is necessary, I have found it the most prompt and effectual method of administering the drug. I have never relied upon it alone for a cure, having always continued the use of the drug in tonic doses by the mouth for some months afterward. The rapid subsidence of cutaneous and other symptoms of the disease through this method have been very gratifying to me and impressive to my patients.

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The pain which it produced is the only objection which I have found to it. I have never seen an abscess nor a permanent induration follow one of these injections. I believe the secret of this lies in the use of sterilized needles and solutions, in injecting deeply into the muscular tissues and in massaging the parts for five minutes or so to promote absorption. My experience is limited to fifteen cases in all, perhaps two hundred injections, but small as this is it has been altogether favorable. That the method will ever supersede oral ingestion, inunctions or baths I do not believe, but in well-selected cases, where rapid effects are demanded, I believe it not only a most useful, but a reasonably safe, treatment for syphilis."

Dr. Arthur Van Harlingen, of Philadelphia, says: "About 8 to 10 per cent. of the skin cases coming under my notice are of syphilitic origin, and the majority of them are light or of moderate severity, and yield readily to the ordinary remedies given by the mouth. In some semi-malignant cases I have found the hypodermatic use of mercury to succeed where the employment of mercury and other drugs by the mouth had failed. I regard this method, therefore, as a useful adjuvant to the ordinary modes of administration. I have never found any danger or serious inconvenience from the use of mercurials hypodermatically. I almost always use the chloride. I have, however, tried several other preparations on a small scale, but without much satisfaction. In my experience the hypodermatic treatment of syphilis does not remove the lesions more rapidly than the ordinary treatment by the mouth, nor does it insure against relapses any more than the ordinary treatment does. I should never recommend its use as a routine form of treatment in average cases."

Dr. John Blake White, of New York, contends that no time should be lost in getting the patient under mercurial influence, and adds: "The syphilitic poison, like that of tuberculosis, affects more especially the glandular system, and the lymphatics are consequently slow to take up and utilize medicine taken by the mouth; therefore we must hope to affect the general system more surely and speedily through hypodermatic injections, the advantages of which I do not believe are exaggerated.

"As to 'curing' syphilis by this method, I am convinced that at least as much toward this result is effected by the hypodermatic method in a far shorter time, more surely and as safely as by the administration of remedies per orem or by inunction.

Dr. W. N. Wishard, of Indianapolis, says: "I have not been sufficiently impressed from my reading of the published experience with this method to lead me to try it, and have consequently had no experience with it."

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I must confess that I attach much importance to the opinions and practice of my colleagues in that Society, composed of the leading syphilographers and genito-urinary surgeons of this country. I know them to be intelligent, alert and ever on the look-out for anything that can improve their results as regards the comfort or the safety of their patients. Their views, and the opinions of such men as Fournier and Hutchinson, who stand in the front rank of syphilographers. not only of to-day, but of all time, far outweigh with me the one sided statements, hasty generalizations and untrustworthy reports of results which constitute so large a portion of the literature of hypodermatic injection. I do not mean to deny that there are men of great eminence and undoubted scientific ability who are among its advocates, but if we look for them among those who give it first place in the treatment of syphilis they are relatively so few that they are lost among the seekers for novelties, and the untrained and inaccurate observers who come to the front in such large numbers whenever an opportunity like this occurs.

In the light of the evidence presented above it seems to me safe to assert that: (1) The hypodermatic treatment of syphilis has not as yet shown results which warrant its adoption as a routine method to the exclusion of or in preference to other methods, but on the contrary has some apparently insuperable disadvantages and even dangers, which render it improbable that it ever will be so adopted.

(2) The circumstances under which hypodermatic medication should be employed may be summarized as follows: (*a*) Those cases in which other methods of treatment have been tried and failed; (*b*) those cases in which, owing to idiosyncrasy or intercurrent disease, the skin and the digestive tract cannot be used for the introduction of mercury; (*c*) those cases in which, owing to grave and advancing lesions, rapid mercurialization is absolutely necessary; (*d*) those cases in which obstinate localized lesions can be most directly reached by this plan; (*e*) possibly those cases referred to by Jullien, in which early differentiation between syphilis and malignant disease, or tubercular ulceration, is extremely important, should be included in this list; I certainly feel inclined to employ the method in all doubtful cases which admit of it, particularly in those conditions of the tongue which often leave the surgeon for a considerable time in doubt as to their exact nature; anything which promises to shorten this period of doubt, by rendering the therapeutic test more rapid and more certain, would be of great advantage; I should, however, in such instances, feel obliged to use potassium iodide by the mouth at the same time; (*f*) a theoretical possibility of the employment of mercury hypodermatically has suggested itself to me, but I have not as yet actually employed it. It may

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be that its use by this method will aid in shortening the period of doubt which often intervenes between the appearance of the primary sore and the development of general adenopathy, or of the exanthemata. If in the presence of a sore of uncertain character the employment of mercury hypodermatically resulted in rapid cicatrization, no local treatment being employed other than cleanliness, it might occasionally throw light upon the case without being open to all the objections which attend the systematic and slower administration of mercury by the mouth. It is possible that the idea is worth a trial in exceptional cases, but I do not think it should be adopted as a routine practice.

(3) As to the choice between the two great classes of mercurials, the soluble salts are to be preferred to the insoluble in the large majority of cases as more exact in the matter of dosage and much less dangerous and less likely to be followed by local disturbances. They are always to be used when there is need for rapid mercurialization.

The insoluble salts should probably be reserved for those cases in which frequent visits to the surgeon are impossible, and in which no contraindications exist. In cases of defective kidneys, diabetes, profound anemia, marked atheroma, great debility, etc., such methods are dangerous, and the case, even if urgent, will probably do better under some other form of treatment.

(4) Finally as to the special preparation to be employed: Among the soluble salts the bichloride is probably to be preferred. The results from its use are not strikingly different from those obtained from the other compounds of this class, but its stability and great solubility and its germicidal qualities seem to warrant its selection. The disadvantage is the pain which it causes, but the evidence in this direction shows that in the hands of impartial investigators not responsible for the introduction of the particular substance employed each of the salts on the list produces a considerable amount of pain and a not inconsiderable number of accidents or complications. Probably the bichloride is freer from objectionable features in respect especially to the production of suppuration than any of the salts of mercury.

Among the insoluble salts, calomel and the yellow oxide are to be preferred. It would appear that the latter is a little less active, but at the same time much less irritating. Gray oil is the most available form of administering metallic mercury.

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CHRONIC CONTRACTED KIDNEY: THE MYSTERY OF ITS DEVELOPMENT, AND THE SECRET OF ITS PREVENTION.[1]

By Horatio C. Wood, M.D.,

Professor of Materia Medica, Pharmacy and General Therapeutics, and Clinical Professor of Nervous Diseases, University of Pennsylvania, etc.

Gentlemen: I propose to-day to call your attention to a subject which has recently greatly interested me, and especially since, through one of those strange coincidences so common in the practice of medicine, I have had a group of curious illustrative cases. Some years since one of the most graceful lecturers who ever adorned a chair in the Medical Department of the University of Pennsylvania had occasion in the lecture room to use in a control experiment normal urine, and selecting his own for the purpose unexpectedly found that he was the subject of chronic Bright's disease. He had supposed himself in perfect health, but not very many months later died of uremia. Such an occurrence as this parallels what happens not very rarely in the daily routine of medical practice. Every practitioner who sees much of chronic diseases must time and again meet with cases in which contracted kidney is not detected until the later stages of the disorder are reached. Commonly the cause of chronic kidney disease is obscure, and although we recognize that gout frequently ends in contracted kidney, and that alcohol, lead and other poisons are well capable of engendering the disease, perhaps in most cases we are not able to point out from what direction the danger has come, and how the lesion, step by step, has encroached upon the normal structure of the kidney.

I have in my hand here before you urine taken from a private patient of my own, and as I examine it we find that it has a specific gravity of 1025; that it is free from albumin and sugar; and though I cannot demonstrate it to you, you will believe me when I say that a careful microscopical examination has proved that it contains no sediment. Ten days ago I examined a specimen from the same patient; it had a specific gravity of 1025, and seemed to be in all respects normal urine. Two weeks previous to this, however, I found in the urine of the same patient a trace of albumin; and a few days before that it had been absolutely loaded with albumin and contained granular hyaline casts in abundance.

The incautious practitioner might very well to-day pronounce the kidneys of Mr. R. perfectly normal, while three weeks ago

[1] A clinical lecture delivered at the Hospital of the University of Pennsylvania.

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another incautious practitioner would have considered himself justified in stating that Mr. R. presented a case of hopeless organic disease of the kidneys.

In a private room upstairs, under my care, is a Mrs. C. To-day the urine which I have upon the table before you is slightly yellow, free from albumin, and contains no sediment; casts have been looked for in it in vain. Its low specific gravity, 1011, is the only point at all suspicious. A week ago the urine of this patient contained no albumin, it had a specific gravity of 1012, and seemed, therefore, almost normal; but Dr. L. S. Smith, my resident, detected in the urine pale hyaline casts, both narrow and broad, few in number, but positive in their nature. Going back in the history of the case, and reading over Dr. Smith's report made a week before the examination last spoken of, I find that at that time the urine had a specific gravity of 1021; that it contained albumin in very slight amount; but that abundance of narrow hyaline and slightly granular casts, with some pale granular casts, were present.

Again, I call your attention to the urine of Mrs. S., in one of the private rooms of this hospital. On January 19, 1893, her urine had a specific gravity of 1025, acid reaction, and was free from albumin, casts, and almost free from sediment. Two days later the urine had a specific gravity of 1028, and contained many epithelial casts and pale and dark granular casts. Some days later albumin was present as well as casts, but the latest examination made, the 6th of March, shows that though the specific gravity was 1034, neither albumin nor casts could be detected in it.

Here, then, is a third case in which at one time the patient seems to be free from kidney disease, and another time has in her urine evidences of chronic disease, which I think would in the minds of many practitioners be a sufficient basis for a hopeless prognosis.

In studying over cases of this character, the first question which naturally arises in the mind is as to the cause of this difference in the urine. In the case of Mr. R., the early urine, which contained casts and albumin, contained an extraordinary amount of oxalate of lime, but when I put the man on the use of nitro-muriatic acid, and every fifth day a Turkish bath, the oxalate disappeared from the urine, and with the oxalate went also the albumin and the casts. In the case of Mrs. C. and Mrs. S., whenever the urine became albuminous and contained casts it contained also an abundance, indeed an extraordinary abundance, of uric acid. I have myself no doubt that the oxalates and the lithates were in these cases simply irritant poisons, which acting upon kidneys predisposed by original constitution or long irritation to take on degenerative lesions, produced what we may look upon as an acute exacerbation of a chronic form of Bright's disease.

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Some years ago a chemist of great ability came to me in much distress because he had found albumin in his urine. There could be no doubt that the man had albuminuria, with hyaline tube casts, but on finding that at the time he was experimenting with some arsenical preparation, involving exposure to the fumes of arsenuretted gas, I suggested that though he had not taken enough arsenic to disarrange his health or to produce any characteristic symptoms, perchance the renal irritation was the outcome of minute amounts of the poison taken in through the respiration. Changing the line of his work, he was soon gratified by finding that all evidences of renal congestion and irritation passed away; and now for many years he has been in excellent health, and so far as is known has never had a recurrence of his albuminuria. I say so far as is known, for it was a mere chance that led to the discovery of the single attack which has been recognized; and it may well be that under occasional stress of circumstances the kidneys of the chemist have suffered from returning paroxysms of irritation.

The first lesson that I want to draw from these clinical records and fix in your memory is that arsenic, lead, alcohol and various other poisons, when taken into the system, are capable of producing not simply those renal symptoms which we recognize as those of acute Bright's disease, but also a condition of renal irritation which resembles in its output chronic disease of the kidneys, and which cannot for the time be distinguished from the fully-formed chronic disease.

The second proposition which I desire you to remember in connection with that just enunciated is that poisons formed within the body are capable of acting upon the kidneys precisely in the same manner as do poisons which come from without, and that lithic acid, oxalic acid and probably ptomaines and other organic substances originating in the human system may produce not only albuminuria but also tube casts. I believe that could we know the life history of cases of contracted kidney whose nature we perchance only recognize when the mischief is too far gone to be undone, it would be found that over and over again in these unfortunate persons, perhaps as the result of a debauch, perhaps as the outcome of an oxaluria, perhaps as the product of a lithemia, perhaps as the work of a poison from without the body, there has been a long series of renal irritations, paroxysms of subacute albuminuria, each one passing away sooner or later, but leaving behind it a minute scar on the structure of the kidneys, and scar upon scar accumulating until at last the whole renal structure has been destroyed.

How careful are we of the young person whose constantly recurring pulmonic catarrh is to us a signal-note of serious danger, we recognize the pulmonic catarrh at once because the frequent cough is, as it were

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the alarm bell which arouses every one. But the kidney catarrh has no gong to sound its presence, and so I believe it comes and goes unnoted; and when the organ has been wrecked and the symptoms are so plain that he who runs can read, then men wonder at the mysteriousness of contracted kidney.

There is, I think, a widespread belief in the profession that excessive worry may produce chronic Bright's disease. It is certain that excessive worry may disarrange the digestion, stop the action of the liver, impair primary and probably also secondary assimilation, and lead to the development of organic poisons, which must be eliminated through the kidneys. It is not unreasonable to suppose that an emotional or other nerve storm which can alter the nutritive activity of the liver can alter the nutritive activity of the kidneys; and the history of the paroxysms of hysteria show most fully that the secreting activity of the kidneys may be directly and immediately affected by an emotional excitement of the nervous system. I have no doubt that diabetes may be the outcome of violence. I have seen it seemingly produced by a beating. I believe that the death of Professor Agnew, whom we all have so sincerely mourned, was the outcome of a fall in which he received a violent blow upon the back of the head, which in turn produced an acute diabetes. Whether or not blows upon the head or injuries to the nervous system can produce a direct acute albuminuria is uncertain, but it seems to me not impossible that trophic nerves may dominate these glandular organs.

Some years ago I saw in consultation with Dr. Joseph Leidy, Jr., a case which is to me very interesting, because my diagnosis proved absolutely wrong, and because it demonstrated the danger of a hopeless prognosis in cases of renal disease even when the symptoms are apparently most severe. I read you a summary of the case as it has recently been furnished me by Dr. Leidy:

"M. D., aged 64, widow, was found June 17, 1891, during very hot weather, lying in the garden adjoining her house unconscious. When I saw her soon after, the following conditions were noted: Temperature, 96.2°; pulse, 68, feeble; respiration, 18; face pale; extremities cold; sensation and motion normal. She soon recovered consciousness, but complained of her left leg feeling numb. During the examination she had a general convulsion, but the twitching of muscles on left side was most marked. Pupils equal; no paralysis; heart, systolic murmur at apex, over base and transmitted through the carotids; arteries hard and indurated, fibroid; urine showed sp. gr., 1010, alkaline, broad hyaline and granular casts, with considerable albumin and trace of sugar. At this time I was asked to see her; I thought the attack uremic, and the diagnosis of contracted kidneys most reason-

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able. The sugar disappeared on the fourth day, and there has been no return. There was a repetition of the convulsion on second and third day, and on the tenth day. The kidney complications, under diuretics, milk diet, etc., steadily improved until now, one year and a half since the attack, there does not exist the slightest evidence of renal disease. Examination of urine to-day shows sp. gr. 1020, acid, no albumin, casts or sugar. The patient feels perfectly well except for attacks at irregular intervals of neuralgia, but complains now and then of some shortness of breath, which is of cardiac origin."

With the complete history of this case before us, it seems to us very evident that the original condition, which I mistook for uræmia, was really one of the forms of heat stroke (to which I myself have given the name of "heat exhaustion"), and that the sugar which was then in the urine, and which disappeared in a few days, was the result of the cerebral disturbance. Is it possible that the albumin and casts in the urine, which disappeared as completely though less rapidly than the sugar, had similar origin; or are we to look upon the case as one of cured Bright's disease?

The final practical lesson which I wish to draw for you to day is the great importance of careful and persistent treatment of all persons who have predisposition to diseases that result in the production of poisons that are irritating to the kidneys. In such persons, it seems to me, that from time to time, especially at periods when the diathetic tendency is active, repeated studies of the urine should be made. As the strain upon the kidneys is undoubtedly increased by heavy eating of nitrogenous food, the examination of the urine in these cases should be of specimens passed six to eight hours after the heavy meal; and I am not sure that sometimes it would not be justifiable or even judicious to test the kidneys of such persons by noticing whether such extremely irritating poisons as cantharides or oleoresin of capsicum taken in small amounts would provoke albuminuria. If it were found that such poisons readily caused renal disturbance, the importance of assiduous care-taking of the kidneys would be emphasized.

As a part of the management of such cases I want to speak upon two points, which seem to me especially important in this country, where everybody eats more than is good for him or her, and where, though we have inherited the English habit of skin cleanliness, very few persons really develop the skin as an excreting gland. In my belief, every person coming toward middle age, and having a gouty diathesis, should at least once in ten days, or more probably once a week, take a Turkish bath. I have no doubt that this most powerful of sudorific measures does develop the sweat glands, and does increase the power of the skin as an excreting organ, and that it is a great safeguard against the development of chronic Bright's disease.

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Moreover, persons of the class of whom we are speaking should also assiduously do one of two things: either keep down the eating habit or else keep up the exercise habit. At the present moment, when college athletics fill the air of the continent with the hum of their activity, no homilies on the value of exercise seem necessary, and so I pass the subject by with only one more word of warning. The college athlete during his college life develops both muscular and digestive apparatus. Now if, as is but too often the case, after he leaves college he marries, and soothing himself with the moist, depressing fog of domestic felicity, ceases the exercise but continues the eating; the man is, according to my thought, much worse off than if he had never exercised at all. Once the exercise habit has been formed it must continue, and the athlete for the quadrennium of early college life, if he wish to live long in the land of his fathers, must be an athlete for life; once an athlete, always an athlete, or pay the penalty.

HYPNOTISM AND SUGGESTION.[1]

By Theodore Diller, M.D.,

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So much confusion and misconception on the subject of hypnotism and suggestion exist not only among the laity, but in the minds of many physicians, that I have thought an attempt to briefly, plainly and impassionately consider them—and especially some unusual phases of them—before this representative medical body, would not be unprofitable.

Hypnotism was employed among the Persians, Egyptians, Hindoos and Greeks; indeed, it is mentioned in the Odyssey. But as it is not the purpose of this paper to enter at length into a history of the subject, I will refer only to an outline of it during the last century.

More than a hundred years ago artificial sleep or somnambulism, was induced by one Mesmer, after whom we have the well-known term "mesmerism." The subject excited very great interest in Paris and throughout Europe by the work of this skillful operator. But the ignorance, superstition and unscientific spirit of the age were not calculated to examine the subject in a careful and dispassionate way. Distrust, exaggeration, false claims and misrepresentation prac-

[1] Paper read before the meeting of the Pennsylvania State Medical Society at Williamsport, May 16, 1893.

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tically killed the movement. About fifty years ago James Braid, a physician of Manchester, induced hypnotism by having patients steadily gaze on a bright object. He practiced this method in his native town for a number of years. He died in 1860—the same year which witnessed the opening of the now famous dispensary at Nancy by Dr. Liébeault. So from 1840 up to the present time hypnotism has been practiced by physicians for the cure of various diseases. During this period, and for a much longer time, the so-called "mesmerists" and traveling performers had been plying their trade and victimizing their dupes. Up until ten years ago the whole subject was regarded by all but a very few physicians as disreputable, and one which a decent medical man could not investigate without compromising or degrading himself, so firmly were the rank and file of the profession convinced that mesmerism was humbuggery or charlatantism, pure and simple. But one after another, medical men of dignity and standing in their communities began to study the matter, until so many became engaged in the subject that the prudent medical man might not only investigate, but actually practice, hypnotism without compromising himself in the eyes of his professional brethren. During the past five years a large number of the most distinguished medical men in the world have been studying hypnotism, and during this time several thousand books and magazine articles pertaining to it have been published. To-day the tables are turned. He who would doubt the existence of the hypnotic state subjects himself to the criticism of not being open to reasonable conviction.

In 1890 the British Medical Association appointed a committee to investigate the subject. This committee, which consisted of a large number of the best known medical men in England, after an interval of two years spent in investigation, reported last summer to the association that they had "satisfied themselves as to the genuineness of the hypnotic state," but not of "animal magnetism," so-called. The approval of this representative conservative body of medical men must go a long way toward removing lingering doubts as to the reality of hypnotism which may linger with any of you.

This change in the attitude of the medical profession toward the subject has been regarded with ill-favor by certain so called old-fashioned "mesmerists," who contend that in real "mesmerism" certain invisible lines of force go from the operator to the subject, and *vice versa*. They claim to be at times temporarily affected by the disease which they are endeavoring to drive out of their patient, and allege that the popular hypnotism of the present day is a condition of coma or stupor, induced by gross physical means, and as different from the subtle and mysterious "mesmerism" as sleep is from death. These are the traveling showmen—the psychological quacks.

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Having glanced at the outlines of the history of hypnotism, let us next pass on and study the various methods by which it is practiced to-day.

There are four principal schools, all represented in France, the country which has led in the investigations of the subject. There has been anything but agreement between these schools, but, on the contrary, fierce contention and rivalry. But all are agreed that there is such a state as hypnotism, and the unbiased observer must feel that there are underlying and fundamental truths, which sooner or later will be sifted out.

(1) The *Charcot School*, at *Paris*, operates only on subjects suffering from the grave forms of hysteria, and holds that hypnotism is only a form of hysteria, or at least closely allied to it. Certain physical or somatic signs are present, by which the hypnotism may be recognized. The patient is hypnotized by a gentle pressure over the eyeballs, which soon causes him to become passive and motionless. This is the first or so-called lethargic state of hypnotism, and is to be distinguished by the presence of neuro-muscular excitability. When pressure is made on a nerve the muscle supplied by that nerve will contract. For example, pressure over the ulnar nerve will cause contraction of the little and ring fingers. In the second or cataleptic state the eyelids are opened, and the limbs become wax-like, and may be placed in any position for a length of time. The third or somnambulistic stage, induced by rubbing the top of the head, is characterized by great acuity of the special senses, and willingness to obey suggestions. Charcot insists upon the physical or somatic signs, and declares that the psychical tests offered by the Nancy school are insufficient, and are not a guarantee that hypnotism has certainly been induced.

(2) The *Nancy School*, on the other hand, holds that not only hysterical, but nearly all sane persons can be hypnotized. But Professor Bernheim and his followers do not look for the three states pointed out by the Charcot school, as they fail to find them, and claims that in his three so-called states Charcot has simply set up a new form of hysteria. They say these states do not appear spontaneously, but occur as the result of suggestion, and claim to be able to induce them in proper subjects by this means. Whereas, the Charcot school uses hypnotism only for experimental purposes, the Nancy school applies it therapeutically for the cure of disease. The patient is directed to calm himself; to make his mind as nearly a blank as possible; to give himself up entirely to the operator, and to look steadily at an object in front of him. Then the operator will in gentle but firm tones say to him: "You are feeling calm; you are at rest; you are comfortable; you are getting drowsy; sleep is coming; your eyelids are

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heavy; you can hardly keep them open; they are beginning to close; they have closed; sleep is coming fast; you are very heavy with sleep. Sleep! Sleep! Sleep sound. You are sound, sound asleep." In from one to five or ten minutes the patient will usually be asleep. But it may take two or three or more trials to affect a person. The stages of sleep induced are light or profound sleep, or somnambulism, of which the first two are quite analogous to natural sleep. The third differs from it in that conversation will not wake the subject as it will the ordinary sleeper.

(3) *Voisin's method* is similar to that of Prof. Bernheim, of Nancy. Voisin has had considerable experience in hypnotizing the insane under his care in the wards of the Salpêtrière, the class of patients most difficult to affect. About 10 per cent. of the patients are affected. Many are hysterical. With some, attempts are made day after day for two or three weeks. Each attempt, which is persisted in for an hour, consists in having the patient lie on the broad of his back and gaze steadily at a bright silvered ball suspended from the ceiling so that it is about nine inches from his eyes. The method of fascination is also used. This consists in the operator looking fixedly in the subject's eyes at a distance of about a foot.

(4) *Luys' Transference Method.*—This operator holds most extraordinary views on the subject of hypnotism. Hypnosis is induced by having the patient sit with his back to the light and look steadily at a rapidly revolving mirror placed two or three feet from him, on which the light is directly shining. The constant flash of the light soon wearies the eyes and produces natural sleep. The method of transference consists in inducing a condition in a subject which existed in another. For example, a crown constructed of a magnet is placed on the head of a hemiplegic, then on the head of the subject, when the latter immediately becomes hemiplegic in a manner exactly similar to the real hemiplegic. Quinine, morphine and various other drugs, in sealed tubes, are placed next a hypnotized subject's skin, when the physiological effects of the particular drug in the tube becomes manifest in him. The most remarkable of Luy's experiments is the enduing of water with sensibility. A glass of water is placed next the subject for hypnosis, and it is suggested that the water will become a part of his body, endowed with feeling for pain, etc. The glass of water is then taken into another room, out of sight of the subject. Violent agitation of the water now causes the unhappy subject to cry out with pain. But a feeling of comfort is soon brought to him by permitting the water to subside, and by gently blowing on it. Luys holds with regard to the matter of transference practically the same views as those held by the "mesmerists," *i.e.*, that there are mysterious, invisible lines of

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force going between subject and operator, and even between the subject and material objects. No one doubts the sincerity of M. Luys. But that he has been sadly duped has recently been conclusively shown. Two or three of his subjects, who frequently came to the clinics, were paid, and were gross impostors, knowing what was expected of them, and acting accordingly. A few doubting Englishmen, who witnessed Luys' operation, suggested that the subject be kept ignorant of what was expected of him, but M. Luys replied that he must perform his experiments in his own way. The same gentlemen procured Luys' regular subjects in their rooms at their hotel and convinced themselves of the gross imposture to which M. Luys had been subjected. Unfortunately, Luys' experiments have been much talked about in the newspapers, all to the hindrance of the scientific study of hypnotism.

Having now looked at hypnotism as it is practiced in the four principal schools of France, I would here state that my own sympathies are with the Nancy school. If neuro-muscular hyper-excitability, lethargy, or catalepsy must, as insisted upon by the Charcot school, be present, and moreover occur spontaneously without suggestion, then only a very small portion of the community can be hypnotized. Robertson[1] estimates not more than 1 in 100,000 of the Paris population, and he moreover avers that not more than twenty subjects, all told, passed through the Salpêtrière during the last ten years. So if this be true, then hypnotism is only of use as affording rare opportunities for experiments in physiological psychology. The truth of the matter seems to be, as suggested by Tambourini[2] after a painstaking investigation, that Charcot may, in certain subjects, have created a new form of hysteria, yet there is no doubt that in an exceedingly limited number of cases Charcot's three stages, with their somatic signs, may be elicited spontaneously. For Tambourini, Grazzini and a few others besides Charcot's immediate followers, have confirmed his observations. On the other hand, the claim of the Charcot school that Bernheim's patients are not hypnotized, because the physical signs are lacking, cannot be admitted, for this is the form of hypnotism which nearly all operators in all parts of the world obtain. It is none the less real because it is almost a purely psychical phenomenon. The plea of fraud on the part of subjects cannot be set up when new and inexperienced patients are constantly being hypnotized. I have never succeeded myself in obtaining the *grand* hypnotism of the Charcot school, but have been able to induce the *petit* hypnotism in various patients without much difficulty, and have not the least doubt as to the genuineness of the state. I have even been able to hypnotize persons who expressed

[1] Journal of Mental Science, October, 1892, p. 528.
[2] Alienist and Neurologist, July, 1891, p. 302.

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doubts as to my ability, and great surprise immediately on being wakened out of hypnotic sleep.

Of 1014 subjects on whom Liebeault attempted hypnotism at Nancy in one year, only 27 were uninfluenced. However, the community there at large are firm believers in the reality of hypnotism, and afford, for this reason, better subjects than we could expect to find in an American city. But Wetterstrand, of Stockholm, who has hypnotized a very large number of persons, has but little larger percentage of failures than Bernheim, of Nancy.

The subjective and objective phenomena of hypnotism vary from slight drowsiness up to grand hypnotism of Charcot, *according to the subject operated on and the operator.* But in the vast majority of subjects a degree of sleep short of somnambulism will be induced.

Hypnotism may be defined as *a psychical state in which the receptivity for suggestions and the willingness to act on them is more or less increased.*

It will be noticed that this definition does not include sleep as an attribute of hypnotism. A psychical condition favorable for the reception of suggestions is often present without the hypnotic sleep. There is no gentleman here, I venture to say, who does not use suggestion as a therapeutic measure in his practice, either consciously or unconsciously.

Let us assume, then, as I think we fairly may, that hypnotism, as induced at Nancy, Vienna, Stockholm, and other great centres in Europe, is real and genuine, and attempt to broadly study the philosophy of the subject.

Dr. Tuckey, in his interesting work on psycho-therapeutics, says: "The peasant women of Brittany are said to send their children to sleep by making them look at a bright ball suspended over their cradles. This, the rocking of the cradle and the monotonous song which nurses chant to infants, are distinctly hypnotic agents acting by the monotonous and continuous stimulation of one sense. It is possible that children yield more quickly to such influences than adults, because their highest centres are as yet undeveloped, and, therefore, more easily acted upon by inhibitory impulses proceeding from below."

This scene, minus the bright ball, is familiar to us all. The mother knows well the effects of a monotonous song and gentle to and fro motion in lulling her infant to sleep. Here we have the most simple and familiar example of the induction of sleep by hypnotic means. We have all experienced the hypnotic effects of a dull book or a monotonous discourse. The rustle of the forest leaves or the splash of the ocean as sleep-producers are familiar to some of us.

In the matter of making suggestions which are acted upon by the

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subject in whom hypnotic sleep has never been produced, we are all familiar. Who has not seen improvement follow the administration of the bread pill or other placebo? Indeed, by suggestion alone without hypnotic sleep, the most varied results may be brought about from a simple sense of well being up to cure of hemiplegia. I know of a case where, by suggestion alone, complete hemianasthesia was transferred from one side to the other.

The baneful effects of depressing suggestions may be as marked as the good effects of healthful suggestions. I recently noted in the advertisement of a worldly-wise quack these lines:

"Disease Feeds on the Disordered
Imaginations of Ignorant Men."

Quacks have learned well the wisdom embodied in these two lines, and make hundreds of thousands of dollars a year out of it.

A number of instances are on record where sudden death has resulted from a mere suggestion. I quote from a Pittsburg newspaper of recent date a remarkable example:

"'Died from heart failure,'[1] was the verdict of the coroner's jury in the case of J. H., of Wellington, Kan., but this prosaic verdict does not tell the story connected with his death. H. was a young man of good appearance, and what is generally known as a 'lady's man.' He was a great favorite, and was always thought to be a harmless sort of a fellow. He went too far, however, in his attentions to several married women, and they told their husbands, who determined to give him a scare and run him out of town. They induced one of the women to answer his note and appoint a trysting place.

"H. received the note, and made arrangements to meet his inamorata. As he approached the place he saw the form of a woman waiting for him, and his steps quickened. The lady appeared coy and started away, but H. hurried after her, until he saw her disappear in a narrow side street. Hastening to the place he suddenly found himself in the grasp of a man, while around him stood four others. All were masked, and carried terrible-looking weapons.

"H. was tied, a trial was held, and he was condemned to death. It was decided that he should be tied with his back to the executioner, and be shot in the back of the head. Seated on a box, which he was told was his coffin, he was blindfolded, and then at a signal a gun was fired, and he was struck gently on the back of the head with a small stick. On receipt of the blow he fell forward, and lay perfectly still. It was supposed that he had fainted, but when he was examined it was discovered that he was dead. The shock had been too great for

[1] Commercial Gazette, May 26, 1892.

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his system, and when the blow was struck he died as if he had received a bullet from the gun of his unknown executioner.

"The matter was reported to the proper officials, and the coroner impaneled a jury, with the result stated. No action has been taken looking to the arrest of the perpetrators of the fatal joke, and it is propable that none will be taken."

When one is wakeful at night let him first *desire*, then *expect* sleep, and he will be in the most favorable psychical condition to court sleep. And this *desire* and *expectation* are at the bottom of all cures or temporary improvements of disease by suggestion. Be it remembered that suggestion need not be made in so many words. It may be acted or implied. Take a simple example familiar to you all. A patient suffering from a painful ailment is from the start desirous of getting well. He sends for his family physician, in whom he has unbounded confidence. He feels so sure that his physician will relieve him that he exclaims, when the medical man has departed, "Oh! I felt better as soon as the doctor entered the door." Most of us have continued to visit patients when there was no further necessity for medical oversight, so far as remedial measures were concerned, solely for the psychical comfort such visits seemed to give the patient.

A child falling bumps its head, and is at once plunged into tears and misery. It runs to its mother filled with the desire for relief, and the more or less confident expectation of receiving such relief. The mother rubs the injured part, blows on it, and says, "There, I've made it go away." The pain does go away.

Is the child's relief any the less real because psychical?

Millions of people derive comfort and solace from rites, signs, appliances, and medicines which to science are valueless. An eel skin about the wrist, an electric belt about the waist, a copper ring on the finger, or a rabbit's paw in the pocket are infallible remedies to many. To dislodge faith in their efficacy would be impossible. Who can say that a confident faith in them may not at least assuage pain in some measure, and assist in promoting mental comfort?

When there is an air of mysticism connected with the process of healing, or where it belongs to a religious ceremony, it appeals most powerfully to large numbers in every community. The so-called "Keely Cure," for drunkenness, is a familiar example, which I may mention.[1] Drunkards go to Dwight with the strong desire to get well, and the firm belief that they will get well. In fact, the desire and expectation of cure are strongly encouraged by those having the "cure" in hand. Enthusiasm is in the air; one inebriate tells another of his

[1] For further discussion of the "Keely Cure," see paper by the writer, Pittsburg Med. Rev. August, 1892.

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bettered condition. Hope is contagious. "Relapsed" cases are not re-admitted to dampen the enthusiasm of those present. Each hypodermic injection is an added suggestion. It is likely that strychnia, cocaine, atropia, and other drugs are used in the bi-chloride mixture, which are strong therapeutic aids to the drunkard, and act in conjunction with the powerful psychical state induced. There is no doubt that many of those undergoing the "gold" treatment are temporarily benefited, and perhaps a few permanently cured.

When to ordinary methods we have religious faith and zeal added as suggestive agencies, we have brought to bear the most powerful influence known to the human mind. From all ages, and among all people, instances are on record going to show the most marvelous effects of mind over body, caused by religious fervor or excitement. History is full of instances of alleged bodily cures effected through desire for a cure coupled with a strong religious *expectation* of it. In this connection I will review four religious movements of recent or present occurrence:

(1) The Woodworth Meetings.

(2) Father Mollinger Cures.

(3) Cures at the Shrine of Lourdes.

(4) Christian Science Cures.

(1) The Woodworth meetings were a series of remarkable religious gatherings, held in St. Louis in the summer of 1890, and which I personally investigated.[1] In these meetings, and in connection with them, not only were so-called cures effected by religious suggestion, but all stages of hypnotic sleep were induced from the slightest drowsiness up to the grand hypnotism of Charcot. These meetings were held daily in a large tent capable of holding 3000 or 4000 people. A feeling of great religious fervor was worked up in the meetings most favorable for the induction of hypnotism. I will quote from the account which I wrote of these meetings, and of the leader of them:[2]

"Toward the end of her discourse she begins to exhort her hearers to 'Look up to the Lord'—'Hold up your hands'—'Have faith.' Her followers obey her injunctions literally; they fix their eyes steadfastly on the electric light high above them, or on the intricate mass of converging tent-ropes beyond. In this position a few of the more susceptible of her believers succumb. . . . . A hymn then follows, which is of a peculiar, monotonous character, and well adapted to assist in promoting the hypnotic condition in many who are slightly or not at all influenced by the visual impressions alone. The hymn is usually repeated a number of times. During the singing, Mrs. Woodworth

[1] For account of these meetings see Medical News, September 27, 1890.

[2] *Op. Cit.*

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and her assistants (of which there are several) walk up and down the long platform encouraging those who are nervous, uneasy, or in any way visibly affected, to 'hold up their hands, look up, and think of the Lord.' The greatest number succumb during the singing.

"As may be expected, more women than men are affected. At one large meeting the number, more or less hypnotized, must have been fully one hundred.

It is not improbable that the leader of these meetings was entirely ignorant of the real nature of the phenomena manifested in her followers. Is it difficult to see how suggestions made by this religious leader, as to the cure of certain real or alleged physical ailments in her believers, might be followed by startling results? One of the nervous clinics in St. Louis was almost deserted by the sufferers from hysteria who left it to attend the Woodworth meetings; most of them were marvelously cured. Many "cures," affected by religious influences, were announced daily by the Woodworth woman. Considerable demoralization ensued upon her departure from the city.

(2) The Father Mollinger cures, heralded over the country a year or two, ago were effected in Allegheny. Father Mollinger, the so-called priest-physician, had, in his earlier days, studied medicine. In some way or other his fame as a healer of disease become spread abroad until vast multitudes were attracted to the Troy Hill shrine presided over by him. We may assume that all who went there were desirous of cure, and possessed more or less faith or expectation that a cure, or at least some benefit, would result from their pilgrimage. The widespread confidence in the reality of the cures effected by the priest physician resulted in producing a general feeling of faith and confidence among his followers to a most marvelous degree. Many positive cures were announced and widely published. So, as in the case of the Keely cure and the Woodworth meetings, a psychical state was produced in Father Mollinger's followers which was in the highest degree favorable for suggestions. So, is it wonderful that after several days' waiting in most hopeful expectation for the blessing and medicine of the priest-physician of the shrine of St. Anthony, the faithful follower received instant relief when he received them? Many were benefited, the most marvelous results being attained in those suffering from hysterical paralysis and other manifestations of that protean malady. Then the large class of sufferers from functional diseases were next most affected. The sufferers from chronic and organic disease, too, felt at the time some improvement. The symptom of pain, at least, passed away. The unbounded faith that relief would follow the blessing of the priest brought about a psychical state which made the epileptic, the consumptive, the victim of Potts' disease or chorea think he was better and

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would surely get well. Crutches were thrown away by grateful pilgrims, splints and other surgical appliances were discarded—it is, alas, needless to say only to be taken up again in a short time. In some instances it is likely that the medicines Father Mollinger prescribed were a real aid to his suggestions, *e.g.*, where suggestions removed the pains from rheumatic joints, and blisters and salicylates kept it away.

(3) The alleged cures at the shrine of Lourdes, were frequent during 1891, and some of them were of a marvelous nature. The conditions by which they were brought about were identical with those which existed at the Troy Hill shrine in Allegheny, save that medicines were not administered at Lourdes. But strong desire for health, expectation, religious faith that a cure would be effected, and then the suggestion were the essential factors. The subject was thus psychically prepared. As at Troy Hill, there was that contagious hope spread by newspaper stories and tales of pilgrims, and the increased expectancy occasioned by delay in actually getting at the shrine. The suggestion at Lourdes is not made by a person but in the act which the pilgrim himself performs, *e.g.*, bathing in a pool. We have medical testimony of unimpeachable character that apparent cures resulted from pilgrimages to Lourdes. Dr. Charles K. Mills relates a case[1] of hysterical rhythmical chorea, contractures and anesthesia of fifteen years' standing which returned from a visit to Lourdes, apparently cured. This patient had to be transported to Lourdes as she had no use of her legs.

(4) "Christian Science," so-called, has effected some marvelous apparent cures. The philosophy of these cures may be explained in precisely the same way in which I have accounted for those at the shrines of Troy Hill and Lourdes. If a sick man strongly desires to get well, then firmly believes he will get well, and then finally that he is well—why, he then is well. Such, in a word, is the Christian Science doctrine. It is a process of auto-suggestion. The expectation of a cure and belief that a cure has been reached, or to put it another way, the belief that no disease exists when all of us would think one did exist, is a religious expectation and belief. Here, as in the Troy Hill and Lourdes cures, the wonderful power of religious faith is invoked to induce a psychical state most favorable for suggestion from without, or auto-suggestion. Many alleged cures have been announced by the Christian Science people. Doubtless some have occurred. It is not difficult to see how the symptom of pain could be made to pass away in any subject who possessed the requisite degree of faith. Nor is it improbable that many real cures of stubborn hysterical affections have been effected. Indeed, the very conditions insisted upon by the Christian Scientist might, in varying degrees,

[1] Journal of Nervous and Mental Diseases, January, 1892, p. 87

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relieve the distress consequent upon any disease or injury. Applied to certain selected cases, its power for good might more than counterbalance its possibility for evil. But employed as it is by these unfortunate, misguided people, it must necessarily be severely condemned by the medical profession. Christian Science might relieve alike the pain of a functional headache, and that resulting from a fracture. In the first case that is all that is required; but in the second case careful adjustment of the parts is the matter of prime importance, the relief of pain a secondary consideration. A number of damage suits have resulted from the treatment of surgical affections by Christian Science. It is to be hoped they have had a salutary effect upon the devotees of that system.

If time permitted, I might quote from medical and religious history at great length alleged cures effected by suggestion, aided by religious influence. The dancing dervishes, the fasting Buddhist, and the ecstatic monks of the Oriental Church are instances in point. Professor H. C. Wood says:[1] "The history of the curing of disease by religious influences and religious emotions offers one of the most curious chapters in medical history. I have seen a case of apparently hopeless insanity, of fifteen years' duration, that had gone the rounds of the asylums, get well in a single night. Under some influence she got upon her knees and spent the night in prayer, and in the morning she was well." This same authority relates the case of a Quaker, who was insane, apparently imbecile, and who had not spoken for a long time, becoming suddenly sane and loquacious at the same time.[2]

Again he says:[3] "I have seen a whole family frightened into hysterics by a woman who had been in bed for fifteen years, seemingly incurable, with grave spinal anemia, so-called, and marked hysteria, under the influence of a religious idea, the so-called faith cure, walking down stairs and taking her seat at the table."

In connection with this subject of hypnotism and suggestion I have purposely devoted considerable time to certain of these so-called cures, about which you are all more or less familiar, and concerning which there has been so much misunderstanding and mystery. The subject is one full of interest to me, and I trust my theory may not be lacking in interest to you. A careful and dispassionate study of hypnotism will, I am convinced, enable us to appreciate many psychological problems which are now but little less than vague mysteries to us. Assuming, as we are bound to, the reality of hypnotism and suggestion, and assuming that these phenomena are at the bottom, or are

[1] Journal of Nervous and Mental Diseases, January, 1892, p. 89.
[2] *Ibid.* p. 90.
[3] *Ibid.*

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the most pronounced factors, as I have attempted to show in various faith and religious cures, a study of the essential nature of hypnotism becomes one of prime importance. This is a problem of great difficulty, and will be most difficult to solve. It would unduly prolong this paper to discuss the various theories advanced.

As a *therapeutic agent* I cannot approve of the grand hypnotism as practiced by the Charcot school. But the minor states of hypnotism from slight drowsiness up to somnambulism as practiced at Nancy may, I believe, have a useful place in therapeutics.

To quote again from the report of the committee appointed by the British Medical Association:[1] "As a therapeutic agent hypnotism is frequently effective in relieving pain, procuring sleep and alleviating many functional ailments. As to its permanent efficacy in the treatment of drunkenness, the evidence before the committee is encouraging, but not conclusive."

In my own experience, which is as yet not very extensive, I have seen pain relieved, mental comfort produced, nervousness subdued. I never employ it alone, but always in conjunction with other treatment. My method of inducing hypnosis is by the suggestive method as employed at Nancy, but I have occasionally used the fixation method also. I have been able to hypnotize a man who was sure I could not accomplish it. On the other hand, only a few days ago, I failed on a paranoic who came to me for the express purpose of being hypnotized. The insane are the most difficult to affect. Voisin, who pursues the treatment so assiduously, is able to affect only 10 per cent. of insane under his care at the Salpêtrière.[2] On the other hand, Tuckey failed to influence only 10 per cent. of persons not insane.[3] The young are decidedly more susceptible. I have seldom failed to influence a person between 10 and 20 years of age. Sufferers from neurasthenia, morphia or alcohol habits, hypochondriasis, dyspepsia, insomnia or morbid habits, are, in general, good subjects for trial. But the treatment has been used for nearly every disease. No doubt often permanent and excellent results may be obtained, but I must say I have often failed to accomplish very much, and have seen patients relapse when I had hoped they had made some permanent progress toward cure.

The voice of warning has often been raised against the unauthorized and indiscriminate use of hypnotism, and it is well it should be so.

The committee of the British Medical Association say:[4]

"Dangers in the use of hypnotism may arise from want of knowledge, carelessness or intentional abuse, or from too continuous repetition of suggestion in unsuitable cases.

[1] Journal Mental Science, October, 1892, p. 577.
[2] Robertson, Jour. Ment. Sc., October, 1892, p. 519.
[3] Psycho-Therapeutics, p. 55.
[4] Journal of Mental Science, October, 1892, p. 577.

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"The Committee are of opinion that when used for therapeutic purposes, its employment should be confined to qualified medical men, and that under no circumstances should female patients be hypnotized except in the presence of a relative or person of their own sex.

"In conclusion, the Committee desire to express their strong disapprobation of public exhibitions of hypnotic phenomena, and hope that some legal restriction will be placed upon them."

It is a powerful agent, and should be in conscientious and capable hands. The strong influence of the profession should be raised against hypnotic public exhibitions and hypnotic faith-cure epidemics. Says Dana:[1] "The general popularization of hypnotism by means of mind cures, Christian science, etc., accomplishes its results at the expense of mental demoralization; and faith-healing institutes are more pernicious elements in society than gin mills."

Let us, therefore, gentlemen, examine hypnotism with honesty, intelligence, caution and boldness, remembering that, like many of our best therapeutic agents, it is a powerful poison, and must be used in a proper way in proper amounts and by proper hands.

HYDROCELE OF THE TUNICA VAGINALIS TESTIS.[2]

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In its widest and broadest sense a hydrocele is an abnormal collection of fluid in a pre-existing cavity, or the formation of a circumscribed wall in the tissue in which it is situated; occurring in areolar or connective tissue it is an adventitious cyst. In fact, a hydrocele is a cyst which is exudative in character, the tumor with the pre-existing cavity being the most frequent. In using the term without reservation, we mean a collection of serous fluid in the tunica vaginalis testis, this constituting, according to the ancients—who were not thoroughly acquainted with the anatomy of the parts—a false hernia.

According to Green, "the wall of a cyst will vary in its nature, according as it is that of a pre-existing or newly-formed cavity. In the former case it will possess an epithelial lining, which will present the same characters as that of the gland, serous membrane, or other structure from which the cyst originated. If the cyst is of independ-

[1] Text-book of Nervous Diseases, p. 499.

[2] Read before the Knox County Medical Society, November 17, 1892.

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ent formation there is no endothelial lining to the fibrous capsule, but one may develop later on, as occurs in false bursæ.

Systematic writers have divided hydrocele into the congenital, the acquired and the encysted. Holthouse added another—inguinal hydrocele—which occurs in connection with an undescended testicle. Holmes recognized still another variety—infantile hydrocele. This is more common than congenital hydrocele, of which it is a variety, and depends on the failure to close of the lower part of the funicular part of the peritoneum covering the cord, the upper extremity remaining closed.

The acquired form of hydrocele is that which the medical man as well as the surgeon is often called upon to treat. It is essential that the practitioner not only thoroughly understands the anatomy of the parts, but also that he be well acquainted with the etiology, pathology and treatment of this affection. The causes leading to this trouble are not always known, though the books mention the following: a blow or other injury, orchitis and syphilis. According to Ashhurst, Agnew, Erichsen and others, this form is most frequent in infancy and during old age, the latter period being peculiarly predisposed to it, owing to the relaxed condition of the parts. However, should it occur in young adults in robust health, it may be considered as due to an injury or strain, as in lifting. Sir J. Fayrer found it quite common in men living in warm climates. He considers it, in some cases, to have a malarial origin. Again, it may appear without any evidence of inflammation beyond a slight tenderness.

Both sides are about equally affected, though in a large number of cases examined the left side showed a somewhat greater proportion than the right.

The symptoms are a swelling, gradually increasing in size, beginning below and ascending till the tumor assumed a pear-shaped appearance, even becoming hard and tense, and fluctuating on percussion. The increase in size varies considerably, frequently becoming as large or larger than a man's fist, and by constantly dragging upon the adjacent skin renders the penis, if not quite invisible, certainly much reduced in size. Benjamin Bell, writing in the latter part of the last century, relates a case, as coming under his observation, so large as literally to cover a considerable part of each thigh, and extend in length from the groin to the knee. And, indeed, Erichsen and Holmes cite the case of Gibbon, the historian, who suffered from hydrocele, and from whom Clive drew off six quarts of fluid. As the tunica vaginalis increases in size it is accompanied by a dull, dragging sensation, as though a weight were suspended from the scrotum.

Now, it sometimes happens that the hydrocele varies somewhat

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from its usual shape, and instead of being pyriform may become more circular, or, more rarely, assume an hour-glass contraction, this constituting what the French writers term "*en bissac.*" This constriction being due, according to Holmes, to an inflammatory thickening, whereby the tunic is less yielding at this point than elsewhere.

If it appears that, in addition to the above-named symptoms, viz., smoothness, fluctuation and pear shape, that there was an impulse on coughing, and by steady pressure the fluid or tumor should gradually disappear only to return again when in the erect posture, even should the surgeon maintain pressure on the external abdominal ring, then the diagnosis of congenital hydrocele would be comparatively safe. Again, Holmes maintains that in infantile hydrocele pressure has no effect, nor is there any gurgling as in hernia, while it still retains its power of transmitting light, and is easily recognized by appearing early and keeping a smooth surface.

The diagnosis of hydrocele in the main is not difficult when we take into consideration the history of the case, as some former injury, etc., and the ascending development, absence of impulse on coughing, and the translucency test; but this latter test is not infallible, for it may fail owing to the thickness of the walls of the sac, or when the contained fluid is of a dark, grumous character. On the other hand, Lucke reports a case of round-celled sarcoma which was translucent. Again, House mentions a hernia which gave this same test by transmitted light. Sometimes, however, all these signs will fail, as in a case coming under our notice, and which developed suddenly after the patient had made a violent attempt to lift a heavy weight. Here there was slight impulse on coughing, and on lying down the tumor would partially disappear, though not entirely.

Wyeth recommends a never-failing process, and one free of risk, in the use of the hypodermic syringe or the grooved needle. But even this may lead the surgeon into an error, for it occasionally happens that a patient suffering from an old hernia may develop a hydrocele, in which event the hydrocele is in front, and thus each tumor will present its own peculiarities. However, should such a thing occur, the one in attendance having used all necessary precautions in making his examinations and having dwelt on all the possibilities of the case, if the history of the case does not throw any light upon it and a doubt still exists, then his only recourse is to make an incision into the tumor to find out the exact condition of the parts.

The fluid of a hydrocele varies in color. It may be of a pale straw or yellow amber appearance, or even assume a dark chocolate hue from admixture of blood, in which event it may contain cholesterine plates; or again it may be of a milky color, due to the presence of leucocytes or fat.

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The encysted hydrocele, called by Paget a seminal cyst (in which category he includes hydrocele of the cord and spermatocele), is, according to Ashhurst, "an independent cyst projecting from the surface of the testicle, or more commonly from the epididymis." In the latter case he says the fluid is milky and contains spermatozoa. He applies the term spermatocele to this condition, and ranks it among the seminal cysts of Paget, this latter being due to dilatation and isolation of a seminal tube, a regular retention cyst.

Ashhurst, however, still makes a distinction, and speaks of a tumor projecting from the surface of the testis, which Osborn says is a dilatation of that vestige of fetal life—the hydatid of Morgagni, a remnant of the Mullerian duct. Should any doubt occur to the surgeon, a recourse to the microscope, by showing the presence or absence of spermatozoa, would settle the question beyond a doubt.

On the other hand Holmes, in his excellent system of surgery, divides hydrocele of the testis into two classes:

I. Common, which occurs in the region of the epididymis.

II. Very rare, encysted hydrocele of the testis proper. As to encysted hydrocele of the epididymis two varieties are met with, which differ in many particulars:

A. Small subserous cysts. They vary in size from a pin's head to a pea, being sessile or pedunculated, and connected with the hydatids of Morgagni. They may be situated on the surface of the testicle anywhere from the head to the tail.

These cysts are, according to M. Gosselin, never found in the testicles of children, and only occasionally between puberty and thirty-five years. Again, he says they were found after that period in two-thirds of the cases examined by him. The character of the fluid in these cysts varies in color from serous to opalescent, and is quite distinctive in that it never contains spermatozoa or spermatic cells.

B. The larger cysts contain spermatozoa, and may be situated in most any part of the epididymis, and from the fact that they arise beneath the fibrous investment of the epididymis, the term "parenchymatous cyst" has been applied to them by Holmes to distinguish them from the subserous cysts. They may be single or double, unilateral or bilateral. They also vary in the amount of liquid present; they contain ordinarily four or five ounces, though in the case of a bilateral affection which has been reported as much as forty-nine ounces were drawn from one side and fifty-eight from the other. The color of the fluid varies from a limpid appearance to a milky-white, and contains spermatozoa. The testis is in front or below, or it may be found at the side, which is quite different from the vaginal variety, where ordinarily the testis is behind.

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As to the cause of spermatozoa in the cysts observers differ. One school, lead by Mr. Liston and Mr. Lloyd, holds that the cyst originates from a dilatation of a seminal tube, and they seek to back up their theory by experiments, whereby fluids, such as mercury, can be injected from a seminal tube into one of these cysts. Luschka was even able to pass a bristle into a cyst from a seminal tube. Another school, of which Mr. Curling is at the head, maintains that the rupture of a seminal tube is a secondary step, and that the cyst primarily develops in connective tissue near a seminal tube. Mr. Curling substantiates his assertions by demonstrations, whereby he shows that it frequently happens that a cyst has the duct of the epididymis stretched and spread out over its surface. M. Gosselin, on the other hand, holds that the cyst is due to a rupture of a seminal tube, and the escape of semen into the surrounding tissue, around which a sac subsequently develops, which in turn secretes a fluid.

Now, while no one theory as to their origin satisfies the minds of the profession, they may all present some element of plausibility, inasmuch as each theory has been substantiated with demonstrations.

While the treatment of hydrocele varies within wide limits (each physician or surgeon having his own way of attacking this disorder) the ultimate object is the same. The ideal result is to bring about such a degree of aseptic inflammation as will cause the tumor to disappear by modifying its secreting power, or again by completely obliterating the sac, and thus rendering the patient immune to subsequent attacks.

Should the affection be congenital, and occur in an infant, some counter-irritant, as muriated ammonia, or dilute tincture of iodine, may be applied externally to the scrotum, as is recommended by some, though I doubt if such temporizing would be of any value. Richard injects alcohol into the sac while using compression over the inguinal canal. In one case in a small child I have seen a cure follow by simply tapping with a hypodermic syringe, and then teasing the walls of the sac with the needle; on the other hand, I have had this same process fail in my own hands in five sittings on three patients, young men from whom I drew the serum with a trocar and canula, and then irritated the sac with the end of the trocar. Ordinarily, for the acquired form of hydrocele two methods, which have been practiced for more than a century by our profession, commend themselves to us, viz.: The palliative treatment and the radical treatment.

In the palliative treatment (which is only temporary), having satisfied himself that the testicle occupies its normal position, and is not situated in front or at the side, as it sometimes does, the surgeon grasps the scrotum above and behind with his left hand, so as to render it

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tense, and selecting a place in front free from veins, thrusts a trocar (which he holds in his right hand, placing his forefinger one-half inch from the end to act as a stop) firmly but steadily into the tumor, when pressing the canula upward and inward, the trocar is withdrawn, and the fluid is allowed to escape. After evacuating the fluid the canula is withdrawn, and the opening closed with adhesive plaster, or cotton dipped in collodion. In addition to this the patient should wear a suspensory bandage for a few days. Before doing this simple operation it is well to see to it that the patient is reclining, in which event he is not so liable to become sick or faint, and thus complicate matters.

In regard to the radical treatment, a great many procedures have been recommended by surgeons; from injections by Mr. Munro, who used simply plain spirit of wine (though he was antedated in his process half a century by a French surgeon, M. Lambert, who flourished at Marseilles, as early as 1677, he making use of a strong solution of corrosive sublimate in lime water) down to dissecting out the entire sac, which method, by the way, was originally proposed by no less an authority than Celsus.

As to the irritants which have been proposed for introduction into the sac, two are in most favor with surgeons, viz., Syme's and Levis'. Syme's plan consists in introducing pure tincture of iodine (from f3i to f3iij) into the sac, and in retaining it there. This was first proposed by Sir J. Ranald Martin; Syme, however, reduced it to a system.

In this connection I wish to sound an alarm, for I have been unable to find anything in any text-book relative to the matter. It is this: Two years ago I had in my care a young man suffering from a hydrocele of the tunica vaginalis testes, on whom I subsequently made a successful radical operation by incision, an account of which operation I will report further on in my paper. On the third sitting, after drawing about half a pint of clear serum, and throwing into the sac two fluid drachms of the pure tincture of iodine, my patient went into a profound collapse, and remained unconscious for several minutes.

Levis' plan, the introduction of carbolic acid, is highly extolled by some writers. He first shaves the scrotum, then introduces a few drops of a 4 per cent. solution of cocaine. After drawing off the fluid with a trocar and canula he injected ten to thirty drops of pure carbolic acid through the canula by means of a hypodermic syringe with a long needle. He then keeps the patient quiet for twenty-four hours, when he is permitted to use moderate exercise.

Whether Syme's or Levis' plan is used, it is best to enjoin rest for a few days and insist that your patient wear a suspensory bandage for

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a few weeks, because there is always more or less inflammatory reaction setting in, with considerable swelling, which gradually subsides, however, and should a permanent cure obtain will leave the affected testicle very little, if any, larger than its fellow.

The seton, at one time quite popular with surgeons, is now rarely resorted to, owing to the violent inflammation sometimes attending its use, resulting in sloughing of the scrotum, more especially when employed in the very aged or very feeble. Should one, and not more than two, injections fail to cure the patient, I would then advise that Volkman's plan of operating by incision be tried, since sufficient evidence has not been adduced to show that when properly carried out it ever fails.

The modus operandi of the operation by incision, or Volkman's plan, as laid down by Barker in his excellent little work on "Manual of Surgical Operations," is with some modifications hereby appended, and is the plan followed in our operations on the two following cases reported:

All hair having been removed from about the genitalia, the latter are thoroughly cleansed, first with soap and water, then with carbolic lotion or solution of bichloride of mercury, then washed with ether or alcohol. The scrotum is now seized in the operator's left hand from behind, and the front is rendered tense by squeezing. It is then laid open by one firm stroke of a sharp scalpel from top to bottom. (However, should any doubt remain in the operator's mind as to any complication, he should carefully dissect his way through the tissues.) The sac should then be searched for any abnormality, such as encysted hydrocele or loculi. These, if found, should be laid open into the general cavity. The edges of the serous sac are now stitched to the edges of the skin at two or three points, the cavity is douched with bichloride solution (1:3000), packed with iodoform gauze or carbolized lint, but not so much as to prevent the sack from contracting; close wound with silk or silver wire sutures, leaving gauze projecting from lower edge of wound, to be subsequently removed when sufficient inflammation has been set up to entirely obliterate sac. More or less orchitis may always be expected after this operation, but with rest, restricted diet and the use of saline purges, if necessary, it will give little trouble.

However, should the affection occur in the very aged, or in those quite feeble, Erichsen recommends that it be treated tentatively, only tapping when the urgency of the symptoms demands it. Because, he says, in such patients any of the above-named operations will sometimes be followed by so much sloughing as to greatly endanger the life of the patient.

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CASE I.—W. G., man, white, merchant, aged 22. His mother died of pulmonary phthisis. Personal history good, except that in 1889 he was struck on scrotum, which immediately began to swell on right side. About twelve months afterward I tapped tumor and injected from two to three fluid drachms of tincture of iodine. This was repeated twice at intervals of a few months, with but temporary relief.

At the last sitting, however, after injecting f℥ij of the pure tincture of iodine into the sac, already emptied of its fluid, my patient went into a profound collapse.

His pulse was imperceptible, he stopped breathing, the extremities grew cold, tips of fingers, tip and alæ of nose became purple. A cold sweat stood out on his forehead. His temperature fell to 96° F. In fact, I thought he was dead. He remained in this condition, perhaps, five or six minutes, when he began to rally, much to my great joy. (Yet, strange to say, this did not cure him.)

In June, 1891, I laid open the sac and inserted catgut drainage, and brought the edge of wound together with silk suture. He made an uninterrupted recovery, and has never since been troubled with hydrocele. I might add that subsequently an oblique complete inguinal hernia developed on the same side as the hydrocele, he already having one on the left side.

CASE II.—J. H., white, aged 36, lumberman; family history good; his own history revealed an attack of syphilis. In the spring of 1892, after lifting a heavy load, he had a tumor develop suddenly on the left side of the scrotum, which presented some of the features of a hernia, such as an impulse on coughing, and partial disappearance when lying down. Although a little transparent, it did not show that beautiful rosy tint we sometimes see in hydrocele by transmitted light. I introduced a trocar and failed to get fluid, owing no doubt to the fact that I must have penetrated the testicle. Later, I drew away a fluid drachm of a clear serum with a hypodermic syringe, thus confirming my diagnosis of hydrocele. The tumor still increasing in size, I tapped him on July 23, and drew off about a pint of a clear, straw-colored liquid.

On August 9 I did Volkman's operation by laying open the sac, and having examined thoroughly for any cysts, and not finding any, I washed out cavity with a bichloride solution, stitched edges of sac to skin with catgut sutures, closed wound with silver wire, after packing cavity with iodoform gauze. Patient made a rapid and uninterrupted recovery, and is well to this day.

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THE GALVANO-CAUTERY IN NASAL SURGERY: ITS INJUDICIOUS APPLICATION.

By Charles Prevost Grayson, M.D.,

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From a pathological point of view, man's nose during the past decade or two has emerged from comparative obscurity into brilliant prominence. It has been studied "in sickness and in health" until, seemingly, but little remains to be known of it. Its physiological importance as a portion of the respiratory tract and an accessory organ of phonation, in addition to its special function of olfaction, has been fully demonstrated; and, on the other hand, its pathological importance, not only as being itself frequently the seat of disease, but also as being the probable centre for an almost infinite variety of so called reflex disturbances, has, perhaps, in common with that of certain other "specialized" organs, been somewhat exaggerated.

With the investigation and understanding of its various diseased conditions, remedial therapeutics has kept excellent pace. Local and general medication and effective surgical procedures have been elaborated to such a degree that but few nasal abnormalities exist which are incapable of correction. To expedite, or, in fact, to render possible the cure of a certain class of his cases, the shrewd ophthalmologist now recognizes that the coöperation of the skilled rhinologist is essential; and no aurist can to-day be considered fully qualified to treat the diseased ear, unless he possesses an intimate knowledge of the diseased nose and naso-pharynx.

Despite the facts, however, that the nose in its physiological relations is now so well comprehended, that its position at the very commencement of the respiratory tract and its communication with several accessory cavities, among which, on clinical grounds, the ear may be numbered, make its health of exceptional importance, and that its lining mucous membrane is so peculiarly adapted to its special functions; in spite of these facts, it will scarcely be denied that its pathological states are being far too frequently treated with too slight a display of regard for its special or general physiology.

It is the misfortune of many therapeutic novelties that, having passed with a greater or less degree of credit the gauntlet of laboratory and clinical test, and received a quasi-official recommendation for the relief of certain well-defined conditions, they are hastily seized upon by a class of men who proceed to administer them with a recklessness that those of caution in such matters contemplate with amazement. In

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the hands of such rash individuals the new remedy, whatever of real merit it may possess, stands a much greater chance of falling than rising in professional esteem. It is danger from this source which seems now to menace the galvano-cautery in its rôle as one of the instruments of nasal surgery.

Surgical procedures within the nasal cavities are, in the large majority of cases, resorted to for the removal of some form of obstruction. The several varieties of this condition have been too often recorded to need recapitulation. Of all, however, probably the most frequent is that dependent upon some form of swelling of the mucous membrane and erectile tissues enveloping the lower and middle turbinated bones. Broadly speaking, this may be due to its acute or subacute inflammation, to some derangement, other than inflammatory, of the controlling vaso-motor nervous apparatus, or to a chronic inflammation of the membrane with concomitant hypertrophy. With these wide variations in the possible cause of the condition, it would seem scarcely likely that one and the same mode of treatment would, in each instance, be equally well adapted to effect a cure. The assertion is not unwarranted, however, that in by far the greater number of turbinal swellings treated by the routine rhinologist, the galvano-cautery is the first and favorite remedy for their correction, the particular cause of each receiving but little consideration. A moment's reflection will afford several adequate reasons for the popularity of this instrument. As a means of removing or reducing the swollen tissue it is infallible. And then, too, it is so easy of application, so prompt in its results, and, with the aid of cocaine, so absolutely painless, that the hurried specialist is mentally reaching for his electrode almost before he has well completed a first examination.

This may be the more readily condoned, perhaps, when we consider the heartiness and harmoniousness of the chorus of praise that has been addressed to this instrument, almost since the moment of its introduction. This has been sung with such enthusiasm, with such an almost uninterrupted *crescendo* effect, that any doubts some few timid spirits may have entertained as to the absolute harmlessness of the cautery, have been almost overwhelmed by the mere volume of sound. The hackneyed "note of warning" is generally a very discordant note, but concerning this matter of turbinal cauterization, is it not time for some one with authoritative voice to give it utterance? To assert that a remedy should be used with care is not to imply that its use should be abandoned. On the contrary, its improper application, with the inevitable resultant disappointment, if not disaster, cannot but obscure its real value, and, perhaps, lead in time to a loss of confidence that an early and judicious restriction of its use would have averted.

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These generalizations become specific in their applicability to the nasal electrode. It is used with a want of discrimination, with an eager striving for immediate benefit and a short-sighted indifference to possible remote injury, that is ominous of a future fall in both professional and popular esteem. Cases that will fully justify this statement are even now by no means rare, and it promises to be only a little time before they will be frequent.

What is the theory of the application of the cautery for the reduction of these turbinal swellings? That the heated metal sinking into the obstructing growth destroys that portion with which it comes in contact, and on cicatrization subsequently taking place the remnant is held within proper limits by the band of scar tissue attached to the underlying periosteum and bone. As a theory this is simplicity itself, and is apparently beyond criticism; but what are the facts?

Hypertrophic change occurring in the nasal mucous membrane affects rather its vascular and connective tissue than its glandular elements. These latter, so far from undergoing any numerical increase, are encroached upon by the connective tissue growth, and their functions greatly crippled, indirectly through impaired nutrition and directly by pressure. Anything in the nature of treatment that will check this overgrowth of connective tissue, induce absorption of the excess already present, and so remove the impediments to glandular activity, will be rational therapeutics. Does the galvano-cautery, as commonly used, accomplish this? Does it check the hypertrophic process? Has it the least influence in promoting tissue absorption? Does it exert any favorable influence upon the embarrassed glands? To each of these queries we must yield for answer an unequivocal "no." Its one and only action is to remove the obstructing tumefaction; but even this in many cases is not permanent, since it is often followed by recurrence, and this by one or several repetitions of the operation, until the turbinated body is reduced to a mass of scar tissue which, so far as functional value is concerned, might as well be so much leather. In such an instance we have plucked our patient from the frying-pan only to drop him into the fire.

Examples of this traumatic sclerosis will soon become common enough to almost justify its addition to the list of nasal maladies. Can this be reasonably doubted when we read of such wholesale destruction of the nasal mucous membrane as is recorded in an article by a Southern specialist, appearing in a recent issue of the *Journal of Laryngology?* In this paper the writer speaks of his "last thousand cases of nasal cauterization" as nonchalantly as though he were speaking of his last dozen, and in the same sentence he refers to "the nearly three thousand" that have preceded this last series. If one man in a city of fewer than

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80,000 inhabitants has thought it either necessary or justifiable to use the cautery in this way almost 4000 times, the imagination is disposed to reel when it contemplates a proportionate use of this operation throughout the rest of the country. To my mind it seems manifest that recourse is frequently had to this measure after hasty and superficial examination. I have known, not several, but many cases that have been subjected to the operation at their *first* visit to the specialist's office. The use of the probe and the application of cocaine will, it is true, approximately determine whether a turbinal swelling is due to a temporary turgescence of the erectile tissue or to a genuine hypertrophy of its elements, but approximately only. If, indeed, the enlargement should prove to be a veritable hypertrophy, we are not at the same examination informed as to whether it is one of long standing or of comparatively recent origin, as to its possible amenability to the less radical methods of treatment, or, with any exactness, as to the degree of its encroachment upon the normal respiratory space of the nose. Nevertheless, no time is to be lost in the investigation of such trivial details, the glowing knife is plunged into the mass, and, having left its brand in the shape of one or several deep furrows, is complacently laid aside.

In a clinical lecture delivered at the New York Post-Graduate School some months ago, Dr. Rice referred to the condition resulting from excessive destruction of the nasal mucous membrane as "traumatic atrophy." Though, pathologically, this nomenclature may not be strictly accurate, yet, clinically, it is wholly appropriate. Without instituting an actual atrophic process in the injured tissue, the uncalled-for operation, nevertheless, induces one of the greatest evils of such change, viz.: An abnormal widening of the nasal cavities with subsequent secretory disturbances in the nose, the naso-pharynx, and, ultimately, the larynx. Such a condition, with its later sequelæ, is bad enough among those who use the voice for speaking purposes only, but in vocalists it is of much more serious import. A nose of normal calibre is essential for the proper quality of the head notes of the singer's voice, and a deviation from this toward an excess of space is, to the cultivated ear, just as efficient in injuring the beauty of these tones as is a contraction of the resonating cavities. By such redundance of room this series of tones, particularly in the higher male and female voice, will be largely robbed of that ringing, vibrating quality which constitutes its chief charm. Some years ago many pianists, professional as well as amateur, became infected with the notion that perfection of technique could not be attained without section of some insignificant strands of tendinous tissue connecting the extensor tendon of the fourth finger with those of the third and fifth. After the operation had been

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performed a great many times without the confidently-expected improvement materializing, it was concluded that any shortcomings in the matter of technique were dependent more upon a want of hard work—persistent practice—than upon any fancied anatomical impediment. The operation quickly lost its popularity, and is now practically obsolete. A somewhat similar spectacle is again presented in the number of vocalists who are now visiting the office of the rhinologist and praying him to add power and melody to their voices by the touch of that magic wand—the nasal electrode. The accommodating specialist, particularly he who has not devoted much study to the mechanism of the singing voice, its registers, and all the minute details that unite to make or mar its beauty, is too apt to accede to their request to perform the apparently innocent operation, and then, perhaps, to awake to and regret, too late, his error.

I need scarcely disavow any disposition to contend that turbinal hypertrophies should be allowed to remain undisturbed, but only that it is much more judicious to reduce them as far as possible with appropriate sprays and pigments first, and to regard the cautery as a *dernier* instead of a *premier ressort*. Granting that this or some other form of destructive agent will, ultimately, in a limited number of rebellious cases, be necessary, we should not forget that the removal of any more than the exact amount of tissue necessary to restore to the nasal chamber its original calibre, is to be most strongly deprecated. The operator should endeavor to be as scrupulously accurate in the limitation of his operation as was Portia determined that Shylock should be in the removal of that historic "pound of flesh."

Carelessness and want of skill are just as culpable, and capable of producing unfortunate results in nasal as they are in ophthalmic or aural surgery. With a complete understanding of the functional importance of the turbinated bodies, there can be no doubt that operations upon them will be undertaken with far greater deliberation than is now common, and with an eye to the preservation of much of that tissue which is now so often wantonly destroyed. Such understanding will surely lead to a less frequent use of the galvano-cautery, and this to a proportionate decrease of those results certain to bring it into disrepute.

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MEMORANDA.

A JAPANESE SICK WITH SCARLET FEVER.

I HAVE been introduced to a Japanese gentleman, aged 23, living in Brooklyn, who is undergoing treatment by Dr. Benjamin Ayres. As this is the first case of scarlet fever I have ever seen in a Japanese, I report it to you. To-day is the twenty-eighth of the disease. There has been no fever during the last two weeks. Desquamation has been general for three weeks, mostly behind the knees and about the shoulders. He has now scaly desquamation on the palms and soles; noticed first by the patient on the backs of the hands. The throat showed very marked symptoms, and is even now very distinctly red and inflamed. Highest temperature, 103½°. No albuminuria.

I content myself with this short sketch, as I think Dr. Ayres will make a more complete report.

I am the more interested in this case as it is supposed that the Japanese have an immunity from scarlet fever. I have tried, without success, several times to inoculate a Japanese subject with this disease, in the hope of producing a protective virus.

More recently I inoculated two children who had been exposed to the contagion of scarlet fever with the blood serum from a blister on the body of a child who, having had scarlet fever previously, was artificially immune. These children, whether protected or not, did not take the disease.

More recently still, I have inoculated two cases of scarlet fever with pure blood serum from a blister on the body of an adult who was also artificially immune. These inoculations were made in the arms on the third, fourth and fifth days. In these latter cases there was no effect, if diminished desquamation is not to be considered as one. Both cases ran a mild course.

It is my opinion, on which, having so little to go upon, I would not insist too strongly, that blood serum from an artificially immune subject has a virtue, if not curative, at least preventive.

Dr. Seward, of the Willard Parker Hospital, promised me to make a further investigation in the scarlet fever ward of his hospital.

I have given you these facts to show you what reasons I have to be particularly interested in the case on which I have summarily reported.

ALBERT S. ASHMEAD, M.D.

NEW YORK.

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A FORTY-TWO POUND LIVER.

REV. V., aged 58 years, gave the following history: Father dead, age not known; mother living, aged 78 years. His past history is somewhat interesting. Thirty years ago he was a successful minister of the gospel. Twenty-four years ago he stopped preaching and engaged in the cigar business. In this he failed, and afterward he organized a theatrical company. Subsequently he came to Philadelphia and served several years as a police officer. He finally organized a congregation in Philadelphia and preached six years. During this time one of his eyes became affected and he had it removed. The nature of this ocular trouble he did not know. About five years ago he noticed an increase in the size of his abdomen. He consulted Dr. D. Hayes Agnew, who pronounced it an enlargement of the liver. His symptoms were loss of appetite, vomiting, chills, disturbed sleep, highly colored urine, pain in right side, emaciation. Under appropriate treatment he improved, and occasionally preached. The enlargement gradually extended from the epigastric region over the whole of the abdomen, and it was outlined as if there were three distinct tumors. A year before his death he became an invalid, lost flesh and was dyspeptic and nervous.

About six months before he died he again improved; his appetite was voracious. He ate ten to twelve eggs a day besides meat, cracked wheat and other food. The urine was normal in quantity and contained a slight trace of albumin.

He formerly lived in New York City and contracted malaria, which he thought gave rise to his trouble. He denied ever having had syphilis, and there were no indications which would contradict his statement. His wife on several occasions complained of a throat trouble, and the spells seemed to be of a syphilitic nature.

Death finally took place, and a post-mortem examination was held, which showed the enlargement to have been due to his liver, which weighed forty-two pounds. I sent a portion to Dr. Formad for microscopic examination, and he diagnosed it to be a leukemic liver. The other organs were apparently normal.

JOHN P. HILLEGASS, M.D.

PENNSBURG, PA.

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EDITORIAL.

THE INTERNAL SECRETIONS.

THE alleged cures of myxedema following the ingestion or the subcutaneous injection of fresh thyroid juice have of late directed considerable attention to this subject. The first intimation that the ductless glands might convey to the blood certain substances essential to nutrition was given in 1856 by Brown-Sequard, who claimed that the function of the adrenals was to destroy a substance in the blood which was readily transformed into pigment. The experiments which led to this deduction were instituted the year following the publication of Addison's celebrated monograph on the "Constitutional and Local Effects of Disease of the Suprarenal Capsules."

As early as 1869 Brown-Sequard expressed the idea that other glands conveyed to the blood certain substances which played an important rôle in the phenomena of nutrition. Such secretions as were conveyed at once to the blood were termed *internal secretions*, in contradistinction to those which were discharged through the excretory ducts and were termed *external secretions*.

In 1883 Schiff and Kocher demonstrated by an extended series of experiments that the removal of the thyroid body induced the symptoms of myxedema. These experiments led first to the grafting of thyroid glands in sufferers from this disease, and more recently to the injection or ingestion of the fresh juice of the gland. Numerous observers in England, France and Germany have given testimony to the value of this treatment. In some cases of ten or twelve years' duration the symptoms seem to have entirely disappeared after a few months of treatment. In view of these remarkable recoveries, it would appear that an important addition had been made to the pathology and therapy of certain obscure diseases.

At least three theories have been formulated to account for the effect of the thyroid secretion on the symptoms of myxedema. The first is that the gland conveys to the blood a substance necessary to the maintenance of normal nutrition. The second theory, and the one generally accepted, is that a substance is discharged into the blood which renders inocuous certain toxic principles generated in the process of metabolism. The latest theory is expressed by Macalister, in the *British Medical Journal* for April 8, 1893. He believes that the thyroid body adds something to the blood which controls the growth of mucous tissue, which is the predecessor of connective tissue.

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The view that glands with excretory ducts also furnish internal secretions has been confirmed by the discovery of sugar in the hepatic vein, and more recently by the results which have followed experimentation on the pancreas. Lancereaux, von Mering, Hedon, Minkowski and others demonstrated that disease or ablation of the pancreas was capable of producing the symptoms of diabetes mellitus; but a still more important discovery was made by the last two investigators, who found that the symptoms did not develop when a portion of the pancreas was allowed to remain, or when a portion was grafted under the skin of the abdomen. From these experiments but one conclusion can be drawn. which is that the pancreas furnishes a more important secretion than that which is conveyed to the intestine through the duct of Wirsung, one which is discharged into the blood, and whose presence is essential to the completion of the normal glycogenic function.

In the number of the *British Medical Journal* already referred to, Macalister claims to have produced remarkable improvement in a case of pseudo-muscular hypertrophy by the daily administration of a thymus gland. The fact that this disease fails to develop after adolescence suggested that it might be due to the premature cessation of some secretion which during early life possibly exercises an inhibitory function over the production of the fibrous parts of the muscles, and since the period of development of pseudo-muscular hypertrophy corresponds to the period of functional activity of the thymus gland, Macalister was led to select the juice of this body as a remedy.

The discovery of the important functions possessed by these various glands would make the pathogenesis of such affections as Addison's disease, diabetes mellitus, and myxedema tolerably clear were it not for the fact that typical cases of Addison's disease and diabetes mellitus not infrequently occur in which no lesions can be demonstrated in the adrenals in the former, nor in the pancreas in the latter. In many cases in which these organs have been apparently normal, changes have been observed in the nervous system, and it seems not improbable that the diseases alluded to may result not only from organic changes in the structure of the glands, but also from an inhibition of their function. This view is not extraordinary, since it has long been maintained that disturbed innervation may cause jaundice, may inhibit the function of the kidney and cause anuria, and may influence the secretions of the salivary, mammary and other glands.

Leaving out the single instance of pseudo-muscular hypertrophy above alluded to, myxedema appears to be the only disease which has been materially benefited by the employment of the internal secretions as remedies. While it seems fairly established that certain glands possess the property of imparting to the blood something which favor-

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ably influences nutrition, analogy does not suggest and clinical application has not proven, as some claim, that such highly-specialized organs as the heart, brain and spinal cord manufacture or store away substances of special nutritional value.

THE STANDING OF UNIVERSITY GRADUATES.

IN another department of the MAGAZINE is published a table indicating the number of hospital positions which have been obtained in competitive examination by graduates of the University. Of sixty available places in this and neighboring States, University graduates have taken forty-five, or 75 per cent. of the whole number. These results are the more remarkable when it is considered that the appointments were secured when the students were in the midst of their term examinations, and that the University has had to meet during the past session the demands of the largest class ever assembled in any medical college on the continent.

This excellent record is due not only to the untiring efforts of a large corps of efficient professors and instructors, but also to the *personnel* of the class, which is composed of students whom an extended course and rigid requirements have not deterred from entering the school, and especially to the larger share of practical and personal training which the University offers.

The unparalleled attendance during the last session must be regarded as a recognition by the profession and community of the exceptional equipment which the students receive, and now when the halls of the University are crowded, and her graduates are claiming honors at every hand, the time is most opportune for another step in the direction of higher education. With the opening of the school in October the session will be extended to nine months, and the course to four years. These changes must entail some falling off in the size of the classes, but the *personnel* will necessarily improve, and with increased facilities for laboratory work, and greater opportunities for bedside instruction, the results obtained will be far better, and the excellent record above quoted will doubtless be surpassed.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

VARIETIES OF MALARIAL PARASITES.

MARCHIFARA and BIGNAMI (*Deutsche medicinische Wochenschrift*, No. 52, 1892) conclude an article on the above subject in the following sentences: (1) Malaria is an infectious disease which is caused by an hematozoon which belongs to the protozæ. (2) The malarial hematozoon is an ameba, and develops in the inside of the red corpuscles; it changes the hemoglobin into melanin, or brings on a rapid necrosis of toxic origin. This is the cause of the malarial anemia. (3) The organism passes the entire cycle of its changes within the red corpuscle. This at first is a mobile, non-pigmented form, which becomes pigmented. Sporulation and multiplication of the amebæ then take place. As soon as the spores become free they form new amebæ which invade new red corpuscles. (4) This cycle of ameba development occurs regularly with the periodical recurrence of the attack. The sporulation corresponds with the beginning of every febrile stage. (5) During the life of the ameba it probably develops a toxic substance which destroys the hemoglobin of the blood and the parenchyma of certain organs. (6) The morphology and biology of the parasite differs with the different types of fever. One can differentiate between the different types of fever by examination of the blood alone. (7) The parasites not only cause acute alteration in the blood, but also alteration in the bloodvessel system and in the parenchyma of some organs.

ON RHEUMATISM OF THE LOWER EXTREMITY AND ITS RELATION TO ARTERIAL SCLEROSIS.

Dr. ZORGE VON MANTEUFFEL (*Deutsche medicinische Wochenschrift*, February 23, 1893) cites a series of cases of "rheumatism in the feet," in most of whom he discovered a certain amount of arterial sclerosis in the affected members. He claims that a certain proportion of patients, who are called rheumatic, or even hysterical, because of their complaints of pain, are in fact suffering from arterial sclerosis. A careful examination of the vessels in such cases cannot fail to detect the condition. This is the more important from the fact that massage and hot baths, which are often ordered these patients, almost invariably make them worse.

INVESTIGATIONS WITH ERLICH'S TRIACID STAINING FLUID.

Dr. ADOLPH SCHMIDT (*Berliner klinische Wochenschrift*, March 6, 1893) gives the result of his investigations of the color reaction of sputum with Ehrlich's tri-

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acid staining fluid, or Biondi's triple stain mixture. He has found that the sputum in cases of pneumonia is stained red or violet-red, while in other cases it varies from gray to violet, without admixture of red. His process consists in placing a small portion of the sputum in a test tube, with 2½ per cent. solution of HC_2 in alcohol, and shaking until it is entirely broken up and separated. It is then allowed to settle, the alcohol poured off, and the tube filled with distilled water. Then three drops of the stain are added. When the particles are stained the fluid is poured off again, and the distilled water used to wash out excess of color. The whole process requires, at most, ten minutes.

THIRD CASE OF TETANUS TREATED WITH TIZZONI'S ANTITOXIN; RECOVERY.

Dr. E. FINOTTI (*Wiener klinische Wochenschrift*, February 11, 1893) reports a third case of tetanus treated with Tizzoni's "antitoxin." The case was brought into the hospital with severe, well-developed traumatic tetanus. The symptoms became much less severe under the use of the antitoxin, but increased in severity when the supply became exhausted. When the injections were again begun the symptoms became rapidly less, and the patient made a prompt recovery. From a splinter which had been removed from the wound, inoculations were made in guinea pigs, and these died with well-marked symptoms of tetanus.

TREATMENT OF PULMONARY TUBERCULOSIS WITH SUBCUTANEOUS INJECTIONS OF CREOSOTE.

L. FREY (*Wiener medicinische Wochenschrift*, February 18, 1893) reports his experience with fifteen cases. In all of these he found no difficulty in administering the drug, and marked improvement resulted. The cough became less, the sputum lost its cheesy character and contained fewer bacilli, and the general condition improved in all respects. He uses one part of creosote to fifteen of sterilized olive oil. Beginning with 3 c. c. of this mixture, he increases to 10 c. c. at a dose.

THE RELIABILITY OF SALOL AS PROOF OF GASTRIC ACTIVITY.

Dr. HEINRICH STEIN (*Wiener medicinische Wochenschrift*, October 22, 1892) gives the following as the results of a series of careful experiments:

(1) Salol is absorbed from a completely closed stomach, and its decomposition products appear in the urine. They cannot usually be found in the stomach contents.

(2) Increased secretion of mucus in the stomach causes a rapid decomposition of the salol and the products can be found in the mucus.

(3) The elimination of salol, given hypodermically, lasts about two days.

Hence it is not permitted to judge that salol has already passed into the intestine when the reaction occurs in the urine, neither does a failure of this reaction to appear, prove that the pylorus is obstructed.

THE GLYCOSURIC DIABETES.

H. LAURY (*Gazette Hebdomadaire de Medicine et Chirurgie*, February 11, 1893) writes at length of the different forms of diabetes as now classified from the results of the investigations of Lancereaux and his followers. He speaks of a constitutional, a pancreatic and a nervous diabetes. The *constitutional diabetes* is

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one of the forms of malassimilation, the real character of which is so imperfectly understood, and which, under the name of diatheses, are so frequently met with. Other manifestations of this character are known as arthritism, herpetism, and there is a frequent association of gravel, gout, migraine and arterio-sclerosis.

This form of diabetes is often preceded by obesity, appears usually between the twenty-fifth and thirtieth years, and develops so insidiously that often its existence is discovered only by accident. Only after some years is it manifested by the usual symptoms of polydypsia and polyuria. The glycosuria is often intermittent, and is rarely excessive, the amount of sugar not exceeding 150 to 200 grammes in twenty-four hours. Albuminuria is frequently observed at the same time, sometimes alternating with the glycosuria. The progress of the disease is slow and subject to remissions, either spontaneous or under the influence of diet. The duration may be ten, twenty or even forty years. All symptoms may become suddenly aggravated through the effect of a strain or indiscretion, and if the disease had not been previously perceived, lead one to think the beginning sudden. The aggravation may be intense and the general condition fail rapidly, the patient becoming exceeding susceptible to infectious diseases, especially pneumonia and tuberculosis. Even diabetic coma may occur.

The *pancreatic diabetes* begins almost always suddenly, surprising the individual in full health, and the symptoms develop rapidly to an intense degree. Polydypsia and polyphagia are enormous; emaciation comes rapidly; the moral and intellectual faculties are profoundly affected. Digestive troubles soon appear, flatulence and diarrhea, with offensive stools. Trophic disturbances, as falling of hair, decay of teeth, changes in the finger nails, are common. The glycosuria attains enormous proportions—500, 1000 or 1400 grammes of sugar in twenty-four hours. *Albuminuria is rare.* The duration of the disease is, at most, three or four years. The end may be hastened by some complication, like pneumonia or tuberculosis. The *nervous diabetes* has no clinical form peculiar to itself. It may follow injuries to the cerebrum or cerebellum. It has been observed in ataxics, and with lesions of peripheral nerves. The symptoms are not often very severe, the nervous symptoms often obscuring it entirely.

Among the multitudinous lesions found in autopsies of diabetics are many which must be considered secondary. Some of these are caused by the long-continued presence of sugar in the tissues; others are the result of complications to which diabetics are so predisposed. Among the former are the lesions of liver and kidneys. In the liver we find chronic congestion, fatty degeneration, various cirrhoses, among which is a peculiar hypertrophic pigmentary cirrhosis, often with bronzing of the skin. In the kidneys are found congestion, inflammation, coagulation, necrosis and glycogenic infiltration of the epithelium. Among the results of complications are tubercular infiltration of the lungs, pneumonia and pulmonary gangrene. Finally, there are lesions which seem to be connected with the cause of the disease. In the constitutional form there are no peculiar lesions. In the pancreatic form there are some lesion of the pancreas, be it lithiasis, cirrhosis, fatty degeneration, epithelioma or abscess. In the nervous form have been found chronic meningitis, tumors of the fourth ventricle, tumors of the cerebellum, and all lesions, including the glycogenic centre in the floor of the fourth ventricle, injuries and degenerations of the spinal cord, and tumors or lesions of the pneumogastric nerve.

The writer then proceeds to discuss the principal theories as to the cause of the glycosuria, and concludes that failure in destruction of sugar in the organism is the cause in the pancreatic diabetes, over-production in the nervous forms, while all causes take part in the constitutional form.

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The Treatment of Grave Forms of Hepatic Colic with Cold Baths.

H. Mollière (*Lyon Medical*, November 27, 1892) gives the results of his treatment of several cases of severe hepatic colic, accompanied by high fever, by cold baths. Immediately after the first baths were given the temperature fell, the grave symptoms of collapse disappeared, the congestion of the hepatic organs and the spasm of the ducts diminished.

The Treatment of Asiatic Cholera.

Dr. Frank Abbott, Jr. (*New York Medical Record*, March 25, 1893) gives the results of his observations at Swinburne Island during September and October of last year, in so far as they relate to the treatment of cholera. The patient should be washed in warm water, put in a warm bed, and stimulants, as hot tea or coffee and brandy, administered. Before vomiting has begun, several large doses of calomel (30 grains in three doses) are very useful. As soon as diarrhea appears give large injections of hot 2 per cent. solution of tannic acid, as high in the intestine as possible, every two hours. On signs of collapse hypodermic injections of alkaline fluids (sodium chloride ℥ij, water ℥xxxij), with brandy or alcohol. In convalescence the greatest care is necessary in regard to diet, and it must be nourishing and very easily digested.

Trial of the Direct Treatment of Pulmonary Tuberculosis by Interstitial Injections of Chloride of Zinc.

J. Comby (*Union Medicale*, January, 1893) reports that it is possible to inject two or three drops of a 5 per cent. solution of chloride of zinc directly into the lung tissue without pain or inconvenience to the patient, and that such injections can be repeated every third or fourth day. Only four cases were so treated. All of these improved, the expectoration diminishing, and the physical signs being favorably modified.

Our Actual Knowledge of Dysentery, Etiologically and Anatomically.

Wesener (*Rivista internazionale d'igiene*, Naples, September and October, 1892) distinguishes three forms of dysentery, viz., the mechanical, the toxic, and the parasitic. Under the first form he groups all the intestinal inflammations which are directly produced by the irritant contents of the intestine. Formerly, a large proportion of cases were assigned to this class, but of late mechanical causes have come to be considered more as adjuvants than actual primary causes.

Toxic dysentery, also formerly of more weight than now. It is certain that certain irritant chemical substances can produce intestinal ulceration, but just how far this cause acts in the production of actual dysentery is disputed.

Parasitic dysentery may be produced by bacteria or amebæ. In the former no amebæ are found in the dejections, but a bacillus somewhat resembling the tubercle bacillus. In the other form amebæ are found in large quantities.

He concludes: The dysentery of army camps is parasitic and contagious; the endemic dysentery of the tropics is not contagious, and seems to be caused chiefly by the ameba coli; sporadic dysentery may be mechanical or toxic, but is probably due to micro-organisms, the exact character of which has not yet been determined.

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THE TREATMENT OF TYPHOID FEVER WITH CORROSIVE SUBLIMATE.

LORANCHET (*Gazette Hebdomadaire de Medicin et de Chirurgie*, February 18, 1893) writes very enthusiastically of his results in twenty-one cases of typhoid fever. He claims amelioration of severe symptoms, and apparent lessening of the toxic symptoms of the disease. The tongue remained moist and rose-colored, and there was a marked absence of tympanitis. Often the pulse-rate was low in proportion to the temperature. He used a teaspoonful of "Van Sweeten's solution," diluted in a glass of water, and the whole to be taken in four doses within twenty-four hours. All of the cases recovered.

SURGERY

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

TYING THE PATELLA FOR FRACTURE.

TWYMAN (*British Medical Journal*, January 28, 1893) says of the various methods of dealing with fractured patella, the simplest, and the one that most nearly fulfils the requirement laid down by Barker, is one the results of which have not been made known.

A large perineum needle is used, fixed to the handle at right angle. The point is entered through a small incision on the outer side of the upper fragment and passed around it, keeping as close to the bone as possible. The quadriceps tendon is traversed from side to side, and the point of the needle brought out on the inner side of the joint. It is now threaded with stout silver wire and withdrawn. The lower fragment is then dealt with similarly, the ligamentum patellæ being transfixed from side to side. The needle is then threaded with the other end of the silver wire and withdrawn, thus surrounding the bone. The fragments are then pressed together and the wire drawn tight, twisted off and the end hammered to the outer side of the upper fragment. The leg is placed on a "back" splint and slung at an angle of 60 degrees. The patient may be allowed to go about in from nine days to two weeks. Three cases are reported, in two of which bony union took place.

The ordinary perineum needle is a little short, and as the point is passing around, the last quarter of bone tends to spring away from it. The author's needle comes down straight for three-quarters of an inch at that part where the needle proper joints the handle at right angles. The needle must be entered opposite the widest part of the patella in order to keep close to the bone. The wire must be nearly pure silver, and stout. The needle must be carried deep enough into the patellar ligament and quadriceps tendon, and also keep clear of the deeper skin layers, which is very difficult with the ordinary needle. Care must be taken that the wire does not kink on the inner side when it is being drawn tight. This is best prevented by crossing the ends and seizing them with two pair of forceps, drawing evenly with both hands, while the fragments are pressed together by an assistant.

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The incision through the skin should be made in the length of the limb, as it facilitates the hammering down the knot. The wire does not enter the joint, hence there is very little danger of suppuration. The operation takes but a few minutes, and the knot is so placed that it cannot be knelt upon. A joint distended with blood must be aspirated.

The Cause of Death After Burns.

Salvioli (*Centralblatt für Chirurgie*, January 28, 1893) says that the cause of death after burns is due largely to the involvement of the bloodvessels in the different organs. According to Bizzozero, the great increase of blood plates in the normal circulation is essentially the result of burns. When the mesenterium of mammals is examined microscopically, and then heated to a temperature of from 50 to 55 C., it is noticed that the flow of blood becomes quickened, and that the blood plates collect along the walls of the vessels and cause the formation of white thrombi. These, in turn, are torn loose by the blood stream, and as a result we have an enormous number of emboli. In certain cases, and especially when considerable heat has been applied, the blood does not circulate. This condition of stasis is partly due to thrombotic and embolic conditions, which stop up the arteries; partly to contraction of the arteries; and, lastly, to a change in the red blood corpuscles, which become sticky and hang together and thus hinder the blood flow. After death, numerous emboli are found in the lung parenchyma and many blood-plate thrombi in the vessels. To prove that these results are due to the increase in number of the blood plates, we have only to defibrinate the blood, and the application of heat will produce but little effect. In performing this experiment it is necessary to remove a large quantity of blood defibrinate by whipping, filter, and again inject into the animal. This should be repeated ten times in two hours. Through this process the blood loses its power of coagulation, and is poor in blood plates. Before this procedure, one plate to thirty-five corpuscles was counted; after it, one in two hundred and seventy.

Resection of the Bladder.

Albarran (*La Semaine Medical*, January 18, 1893) showed a patient before the French Academy upon whom he had performed a symphysiotomy and then resected part of the bladder wall. The patient had been previously operated upon for a pedunculated neoplasm of the bladder by the supra-pubic method. A year later hematuria reappeared and a cystoscopic examination revealed a sessile epithelioma growing from the inferior part of the bladder, near the neck, and extending upward along the left lateral wall. At the operation an incision like an inverted Y was made in the hypogastric region, and the structures of the abdominal wall divided. The tissues overlying the pubes were separated with a bistoury and then raised. The bone was divided with a chisel and hammer. The thighs being abducted, a separation of the pubic bones of forty-two millimeters was effected. The inferior and left lateral parts of the bladder which were affected with the growth, were removed by incision, and the margin of the wound in the bladder wall brought together and closed by numerous sutures, arranged in a double row. The subsequent progress of the case was very good. By the twenty-third day all that remained was a urinary fistula, the result of a catheter left in the bladder and becoming stopped or clogged with the urine salts. This, however, closed entirely, leaving a small scar. The man resumed his ordinary occupation.

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The Evils of Sacral Resection as it is Performed.

Rydygier (*Centralblatt für Chirurgie*, No. 1, 1893), after a review of the evils likely to result from a large gap in the sacrum, as is made by the Kraske operation for cancer of the rectum, describes a new method for temporary resection of that bone. The skin incision, which begins just behind the posterior superior spine of the ileum, on the left side, is carried obliquely downward along the left of the sacrum and about half an inch to the outer margin of that bone, so that this margin is covered by skin even after retraction of the edges of the wound. The incision is carried downward in the middle line from the tip of the coccyx as far as may be found necessary. The left margin of the sacrum is now exposed at the bottom of the upper margin of the wound, and the left posterior sacro-sciatic and sacro-iliac ligaments are divided. The soft parts are now detached from the anterior surface of the bone and pushed forward, care being taken not to sever the anterior sacral nerves. A transverse incision of the skin is now made from left to right just below the third pair of sacral foramina and about two inches from the junction of the sacrum and the coccyx, and the sacrum divided with chisel and hammer. The large triangular flap, made up partly of the detached fragments of the sacrum and subadjacent skin and soft parts, can now be readily elevated toward the right side. After removal of the diseased portion of the rectum, the cavity is loosely plugged with iodoform gauze and the flap of bone and skin replaced. There is no necessity, the author states, to fix the fragments of the sacrum by sutures. The lower part of the wound is left open to facilitate drainage and the application of new dressings. Necrosis of the partially detached pieces of bone is not likely to occur. No important nerves or large arteries need be divided.

Intubation in Laryngeal Stenosis.

Bokai (*Jahresbericht für Kinderheilkunde*, xxxv, 1893) gives the results of intubation in a series of 291 cases. Every case that appeared to require operative interference was submitted to intubation. Altogether, secondary tracheotomy was performed in only 11 cases. One hundred of the 291 cases recovered; 211 cases were pharyngeal diphtheria, and of these 65 recovered. In 67 cases there was croupous laryngititis, with pharyngeal diphtheria. Of these 32 cases recovered. In nine cases croup was secondary to measles, and only one recovered. In three cases it was secondary to scarlet fever; two recovered. The length of time that the tube was worn is given for the 100 cases that recovered as follows: In 8, ten hours; 18, five days; 1, ten days; and 1 case fifteen days. The author thinks that intubation will replace tracheotomy, in a great measure, as a means of giving relief in laryngeal croup. Tracheotomy should only be considered in two classes of cases: (1) in which the laryngeal stenosis is accompanied by a high degree of pharyngeal stenosis; (2) those in which there is so much edema about the upper aperture of the larynx that no good results could be expected from intubation.

The Treatment of Suppurative Cystitis by Iodoform Emulsion.

Filippow (*Chirurgitscheski Westnik*, 1892) reports very favorably the use of iodoform emulsion in chronic cystitis with suppuration. The bladder is first to be washed out with a ¼ per cent. solution of lactic acid, followed by from 20 to 40 grammes of a 10-per-cent. iodoform emulsion, and allowed to remain for about fifteen minutes, and then drawn off. As high as nineteen injections may be made without danger. In none of the cases treated were any poisonous effects noticed. It is most important to see that the bladder is washed out before injecting the iodoform mixture.

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Urethral Strictures in the Female.

Genouville (*Annales des Maladies des Organes Genito-Urinair*, 1892) points out, as a proof of the extreme rarity of stricture of the female urethra, that not more than sixty cases have been reported. The most frequent cause is gonorrhea, which existed in a little more than one-third of the cases. Traumatism is also a relatively frequent cause, the female urethra being injured during the course of a prolonged and difficult labor. Some authorities have described a form of senile stricture which is attributed to a thickening of the urethro-vaginal cellular tissue. In the female, as in the male, the results of injury to the urethra develop more speedily than those following gonorrhea. The functional signs of stricture of the urethra vary from simple discomfort in micturition to complete retention. The symptoms increase in severity more rapidly in the female than in the male. This clinical fact is due, the author holds, to the fact that in the former the bladder is less powerful than in the latter sex. In cases of obstruction in the urethral canal, the bladder of the female becomes more readily fatigued, and its inferiority is shown by the early development of functional failure. Urethral stricture in the female is capable of producing cystitis and ascending pyelonephritis in every respect analogous to those produced in the male. These complications may result even from a slight stricture of the female urethra. The treatment most frequently practiced in cases of stricture of the female urethra has been that of gradual dilatation. Urethrotomy and electrolysis have also been tried, but not to such an extent as would justify any definite conclusion.

Total urethrotomy, or division of the whole thickness of the urethro-vaginal wall at the seat of stricture, is advocated as furnishing a better security against recurrence of the stricture, since it removes, from a functional point of view, the strictured portion of the urethra, and consequently excludes any possibility of relapse.

The Antiseptic Management of Wounds.

Lister (*British Medical Journal*, January 28, February 18 and 11, 1893) says that two great truths have been taught us by advancing science: That normal blood serum is not a good soil for the development of attenuated microbes, and that bacteria introduced among the tissues, if not in too concentrated form, are disposed of by phagocytosis. The result is that microbes in the form in which they are present in the air are unable to develop in wounds, and thus we are able to disregard in our operations the once dreaded atmospheric dust.

Hence we may dispense entirely with irrigation, whether in the form of the spray or douching; in fact, our operation may be performed with the same simplicity as in former years. What we have to attend to is to prevent the entrance into our wounds during operation of the grosser forms of septic matter, such, for instance, as that which exists in impure sponges, on dirty instruments, or any other unclean material on our hands or on the skin of the patient. As to the best method of purifying sponges, it appears that there is nothing better than carbolic acid, which the author considers much superior to bichloride.

It is a happy thing for surgeons that those organisms which have the most resisting spores do not trouble us in surgical work. There is, however, one spore-bearing bacillus with which we have to deal too often, namely, the tubercle bacillus.

Some experiments were made a few years ago by Yersin, at the Pasteur Institute, to determine the germicidal value of various agents upon tubercle bacilli

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grown in pure cultures on glycerine jelly. He found that a watery solution of carbolic acid 1 in 20 killed the bacillus in thirty seconds; 1 in 100, in one minute; while corrosive sublimate, 1 in 1000, required ten minutes for their complete destruction. The preparation of the sponges is carried out as follows: First, wash well with soap and water and afterward with soda; then thoroughly wash again with water, and, finally, after drying, put to steep in 1 to 20 carbolic solution until they are again required for use.

As to the length of time which the instruments should be kept in solution, a good deal depends upon the care with which they are washed before putting away. Any which have teeth require special attention.

In private practice it is sufficient to put them in solution just before the patient is brought into the room, and kept in during the administration of the anesthetic, and during other preparations; this is quite adequate for thorough sterilization.

In purifying the skin it is not necessary to apply an antiseptic dressing for hours before, as a few minutes' action of the 1 to 20 carbolic is really sufficient.

Carcolic acid has a powerful affinity for the epidermis, penetrating deeply into its substance, and it mingles with fatty materials in any proportion. On the other hand, in using bichloride the skin must be carefully cleansed with soap and water, alcohol or ether, to remove the grease before the bichloride can act. The sponges during the operation are washed in 1 to 40 carbolic solution. Before the wound is finally closed it should be washed out with the same solution (1 to 40).

As the blood and serum oozing into a dry dressing becoming more or less inspissated by evaporation, they are in proportion a less favorable soil for microbic development.

Lister says that iodoform exerts very little influence on bacteria outside of the body; but dusted over a wound it unites with the ptomaines and renders them harmless.

In operations where the integument is unbroken, with sufficient space around for the application of a dressing, its use is not recommended.

An external antiseptic dressing, to be ideally perfect, should have four essential qualities. It should contain some thoroughly trustworthy antiseptic ingredient; it should have that substance so stored up that it cannot be dissipated to a dangerous degree before the dressing is changed; it should be entirely unirritating; and it should be capable of freely absorbing any blood and serum that may ooze from the wound. In applying a carbolic dressing over a wound, the fact must not be lost sight of that although carbolic acid has a peculiar affinity for the skin, it interferes materially with cicatrization; hence, a piece of protective must be placed over the wound.

Corrosive sublimate has the advantage of not being volatile, but it is readily washed out of the gauze or wool charged with it, and under some circumstances it proves very irritating. The discharges passing from one part of the dressing to another took up more and more of the bichloride in its passage, and sometimes became so strong a solution of the salt as to cause vesication.

The author endeavored to remedy this defect by combining the bichloride with serum obtained from the blood of the horse. But although the gauze so prepared answered its purpose, the difficulty of preparation was so great that its use was abandoned.

The agent which has been found most satisfactory as the antiseptic ingredient of the dressing is the double cyanide of mercury and zinc. The cyanide of mercury is very soluble and irritating, but the combination with zinc renders it much less soluble, and consequently unirritating.

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When this salt is mixed with serum and corpuscles, it prevents putrefaction in smaller quantity than any other known antiseptic. While the double cyanide is a great inhibitor, yet it is a very feeble germicide.

When the double cyanide gauze is brought in contact with sublimate solution, a very soluble, feeble germicide is formed; at the same time it is highly irritating.

It is quite unnecessary to have the gauze wet with the carbolic lotion; mere dampness is sufficient. It may be conveniently moistened as follows: The gauze is commonly sold in pieces of three or six yards, folded lengthwise in eight layers. These are unrolled, and half the number to be moistened are sprinkled roughly with the lotion. The wet and dry pieces are then superposed alternately, and the whole rolled firmly together. For convenience, the prepared gauze may be colored with hydrochlorate of mauveine, known as purified rosolane.

For charging the gauze it is diffused with pestle and mortar in a 1 to 20 solution of carbolic acid in the proportion of 30 grains to the pint; the gauze must be of a thoroughly absorbent quality, is drawn in a thickness of about eight layers through the liquid, and is then hung up to dry at the temperature of the air. A very cheap kind of carbolic acid will answer, and the solution that drains from the gauze may be used over again.

When free discharge is anticipated, a piece of mackintosh, sponged off with carbolic acid solution, should be placed over the exterior of the dressing to prevent the blood and serum from passing directly through it. There is still another advantage which the dyed cyanide powder has, and that is, when rubbed up with 1 to 20 carbolic acid solution to make a soft mud or cream, which may be applied with a camel's hair brush to parts where there is very little space between the wound and some source of septic contamination.

In redressing a wound the same carbolic solution is used to wash out the wound. When there is much discharge the first dressing should be removed in twenty-four hours.

Drainage of the Ureters after Hypogastric Operations upon the Bladder.

Willems (*Annales de la Society de Medicine de Gand*, 1892) advocates the practice, which, he states, is a delicate yet perfectly practicable proceeding. In hypogastric lithotomy it is advisable whenever the wound in the bladder is unimportant and subject to prejudicial influences, when the urine is unhealthy and septic. The ureters should also be drained after the removal of a vesical tumor, whether by hypogastric or perineal incision. It protects the wound from morbid urine, and allows of antiseptic plugging of the cavity. He places the patient in the Trendelenburg position, the pelvis being raised about fifteen inches off the table. The abdominal viscera no longer press the bladder walls together, and the trigone can be readily seen through the hypogastric incision. A catheter with a Y-shaped end is then passed backward through the urethra. The two branches are next introduced through the ureter. The upper part of the mucous fold over the orifice of the ureter should be seized with forceps of the kind used for fixing the conjunctiva, otherwise the very movable vesical mucous membrane may be pushed forward. As the vesical part of the ureter is a narrow tunnel, the passage of the catheter needs skillful manipulation. The ureter tolerates the catheter very fairly. In a case of Pawlik's the woman bore it for forty-eight hours, in Schede's case seven days, and in Albarran's case ten days. Hence the catheter allows time for perfect union of the vesical wound.

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A Case of Extirpation of the Spleen for Traumatic Rupture.

O. Riegner, in the *Berliner klinische Wochenschrift*, February 20, 1893, gives the history of a case in which he successfully removed the spleen for rupture. A boy, aged 14, fell three stories, striking his abdomen on a board. On admission he was shocked, pulse 110 per minute, small and almost thready; breathing superficial and jerky. Abdomen not distended, very sensitive to pressure, and no abnormal dulness. Next day the temperature was a degree below normal; pulse weaker and more rapid (120). Hypogastric region was now dull to three fingers'-breadth beneath the umbilicus, and on left side up to the anterior axillary line. The increasing pallor, frequency of pulse (it reached 140), together with the dulness on percussion, indicated operation. A large incision was made in the median line, joined by one to the right, but the blood appearing to come from the left side, a transverse incision to the left was made, and the intestines turned out and covered with warm compresses. The spleen was found ruptured completely across its middle. The vessels were ligated and the organ removed. In both arms and thighs injections of 300 grammes of 0.6-per-cent. salt solution were given. After recovery from the operation, gangrene of the left leg occurred, and at the end of the fourth week it was removed at the knee joint. The inguinal and axillary lymphatic glands enlarged, and then the cervical ones; the amputation wound healed rapidly, an abdominal corset was applied, and the patient discharged.

An Operation for Re-covering the Denuded Cranium.

In the *Medical News* of March 4, 1893, Haldor Sneve describes a method of hastening the healing of wounds of the scalp which was said to have been practiced in the far West in cases of scalping. It was supposed to have been introduced by a traveling French surgeon, and consists in making a number of punctures through the external table of the skull into the diplöic structure. Through these openings granulations spring up, and more rapid healing results. The author, in a patient with denuded bone over a space two by two and a-half inches, made thirteen perforations one-eighth of an inch deep. The depth was determined by the feeling of lessened resistance to the instrument. The drill used was one-sixteenth of an inch in diameter, and a wooden cork was placed over its end, allowing the point to project one-eighth of an inch. On the twentieth day small red points were visible in the openings thus made, which grew rapidly until the whole surface was covered with granulations. These were afterward covered with skin grafts, and the whole cicatrized nicely.

Total Ablation of the Ureter after Nephrectomy.

In *L'Union Medicale*, February 18, 1893, p. 248, is the report of a case in which Reynier, after performing a nephrectomy, later excised the ureter. He believes it to be the first operation of the kind performed. The kidney was removed for abscess which had destroyed its tissue. Pus still continued to make its appearance in the urine, so that six months later he made an incision such as is made for the ligature of the common iliac artery. The fistula in the loin aided in finding the ureter. This was followed down and ligated close to the bladder. It was then removed. The patient, a young soldier, left the hospital cured. In the discussion, Championnière said that of all the nephrectomies he had performed there had never been a single case of fistula following. Terrier had had the same experience, he always taking good care to fix the ureter in the wound to avoid infection.

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THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

THE THERAPEUTIC EFFECT OF HIGH ALTITUDES.

C. THEODORE WILLIAMS, in a lecture delivered before the Royal College of Physicians, London (*British Medical Journal*, April 1, 1883), states that his studies of the effect of high altitudes on phthisis warranted the following conclusions:

(1) Enlargement of the thorax takes place unless opposed by the growth of fibrosis, or by extensive pleuritic adhesions.

(2) Males and females seem to do equally well, and profit most between the ages of 20 and 30, males over 30 and females under 20 benefiting least.

(3) The climate is specially beneficial in hemorrhagic cases and in hereditary cases, and appears in the latter class to exercise a distinctly counteracting influence on the development of phthisis.

(4) It is most effective in cases of recent date, though of utility in those of long standing, and to insure its full benefit at least six months', and in many cases two years', stay is desirable.

(5) With regard to the actual results of the climate, it undoubtedly produces great improvement in 75 per cent. of cases of phthisis generally, and in 43 per cent. it causes more or less complete arrest of the tubercular process.

Its beneficial influence is best shown on tuberculous consolidation, where improvement may be looked for in 87 per cent., and arrest in 57 per cent. Arrest takes place in 16 per cent. of the patients with excavations, and great improvement in 55 per cent. High altitudes also prove beneficial in:

(1) Imperfect thoracic and pulmonary development.

(2) Chronic pneumonia and bronchiectasis.

(3) Chronic pleurisy, where the lung has not expanded after removal of the effusion.

(4) Acute phthisis of all kinds, and especially where there is great irritability of the nervous system.

(5) Phthisis with pyrexia, and in pyrexial cases generally.

(6) Emphysema.

(7) Chronic bronchitis and bronchiectasis.

(8) Diseases of the heart and great vessels, except functional ones; diseases of the liver and the kidneys, including all forms of albuminuria (Andrew Clark).

(9) Diseases of the brain and spinal cord, and conditions of hypersensibility of the nervous system.

(10) Anemia.

(11) In patients of advanced age or too feeble to take exercise.

THE ACTION OF DIURETIN.

GENERSICH (*Pester Med.-Chir. Presse*, No. 52, 1892 has studied the effects of this drug in sixteen cases of dropsy, from various causes, and concludes as follows:

(1) Diuretin produces in many cases of cardiac dropsy diuresis, but in edema from other causes its action is uncertain.

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(2) Diuretin acts, in some cases, in which digitalis, strophanthus and calomel fail.

(3) It is not so certain in its effect that it can displace calomel.

(4) Its action on the heart is slight.

(5) Its disadvantages are its expensiveness, bad taste and disturbing effect on the digestive tract. As it is capable of producing alarming symptoms, some caution must be exercised in its employment.

Herrich, in the *Journal of the American Medical Association* for March 11, 1893, reports eight cases of cardiac and renal disease in which diuretin was used with advantage, and draws the following deductions from his experience with the drug and the study of the literature bearing on it:

(1) Diuretin is a diuretic acting by direct stimulation of the renal epithelium, and best suited to cases in which there is general dropsical effusion.

(2) It is the best medicinal remedy for removing dropsical fluid due to valvular disease of the heart, after digitalis and pure cardiac tonics have failed.

(3) It can be advantageously combined with digitalis and pure cardiac tonics.

(4) It probably has a direct effect on the heart as well as upon the kidney, slowing and strengthening its action and improving its rhythm. (This is disputed by some, viz., Cohnstein, *Ueber den Einfluss der Theombromine, etc., auf den arteriellen Blutdruck*, Inaug-Diss., Berlin, 1892.)

(5) Diuretin has oftentimes a beneficial effect in other circulatory diseases with dropsy, as myocarditis, pericarditis, aneurism, arterio-sclerosis. Its action is here more uncertain than in valvular disease.

(6) In the dropsy of nephritis it can be used without danger of irritating the kidney, the effects in acute nephritis being more certain than in chronic nephritis. Where the renal epithelium has undergone too extensive degeneration, the drug may fail to act.

(7) In the dropsy of portal obstruction, and especially of cirrhosis of the liver, it usually fails to give good results.

(8) It occasionally causes nausea, vomiting, diarrhea, palpitation, headache and slight fever; rarely, skin eruptions follow its use.

(9) The maximum daily amount that can be given with safety is 150 grains; the average daily amount is 50 to 120 grains, given in divided doses. When combined, in heart cases, with cardiac tonics, smaller doses of diuretin can be employed.

(10) It should be given in solution in water or milk, or in pill or capsule, without acids, and by preference between meals.

Pilocarpin in Laryngeal Diphtheria.

Degle (*Wiener medicinische Presse*, 1892, No. 44), has employed pilocarpin internally in four apparently bad cases of laryngeal diphtheria. It promptly lessened the dyspnea and effected a cure. The saliva and perspiration were increased, but no bad effects were observed. Good results followed within twelve or twenty-four hours. He administered three to four centigrammes of the hydrochlorate with infusion of ipecac and syrup of senega in the twenty-four hours.

Benzonaphthol in the Gastro-intestinal Catarrh of Children.

Brück (*Pester Med. Chir. Presse*, 1892, No. 46) employed this remedy in thirty-eight cases of gastro-enteric catarrh in children. In twelve cases the results

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were negative; he thinks the failure was probably due to the too early discontinuance of the drug, or to the imperfect care which the children received. In the remaining twenty-six cases the antiseptic action of the drug rendered the fetid stools almost scentless, and produced an improvement in all the symptoms. In acute cases the fever almost disappeared, and in tuberculous cases the symptoms were temporarily improved. The astringent action of the drug was often remarkable. No bad effects were observed, but the urine frequently became increased. The drug was prescribed with powdered sugar, and the daily dose ranged, according to the age of the child, from three to twelve grains. Benzonaphthol may also be employed with advantage in intestinal inflammations of an infectious type.

Dermatol in Diarrhea.

Colasanti and Dutto (*Bulletino della R. Accad. Med. di Roma*, xvii, 8, 1892), claims that dermatol is one of the best remedies in the modern therapeutics of diarrhea. They state that good results were obtained only with the dermatol prepared by Hœchst. The remedy was employed in diarrhea of several varieties:

(1) In 100 cases of colliquative diarrhea of phthisis the results were remarkable. As a rule the daily dose was thirty grains, in four powders, but in severe cases this amount was increased to ninety grains daily. Its administration caused no disagreeable results.

(2) In the diarrhea of typhoid fever the results were as satisfactory during the febrile period as during convalescence.

(3) Ten cases of ulcerative entero-colitis, which had entirely resisted all other medication, were entirely cured by dermatol.

(4) In six cases of diarrhea of malarial origin the results were rapid and definite.

(5) The diarrhea attending the convalescence of acute febrile diseases also responded favorably to the drug.

G. Caruso-Pecoraro and S. Tomasini also testify to the value of dermatol, in daily doses of fifteen to sixty grains, in several varieties of diarrhea.

Bicarbonate of Sodium in Diabetic Coma.

Huchard (*Revue Gén. de Clin. et de Thérap.*, March 1, 1893), again calls attention to the value of large doses of bicarbonate of sodium in the prodromal stage of diabetic coma. He states that precursory symptoms—somnolence, dyspnea, muscular weakness, etc.—entirely disappeared in the course of a week when the dose of the alkali was increased to thirty and then to forty-five grammes per day. He also reports a case treated in the same manner by Chaufford, which confirmed the value of this treatment. In this patient the headache, vertigo, mental depression and the falling off of the urine disappeared within forty-eight hours after the daily administration of twenty grammes of bicarbonate of sodium. With the disappearance of the grave symptoms, the perchloride of iron fails to give with the urine the reaction for diacetic acid. Since the intravenous injections of alkalies have failed in the treatment of fully-developed acetonemia, the author claims that the successful use of large doses of sodium bicarbonate in the prodromal stage is a distinct advance in the therapy of diabetes.

Hydrochlorate of Phenocoll.

Kucharjewski (*Kronika Lekarska Wratch*, No. 44, 1892) has experimented with this drug in fifteen cases: Phthisis, three; typhoid fever, one; erysipelas,

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one; sciatica, two; hepatic colic, one; chronic myelitis, one; facial neuralgia, one; and articular rheumatism, five. He obtained the following results:

(1) Hydrochlorate of phenocoll is a certain antipyretic in doses of fifty centigrammes to six centigrammes, administered within two hours.

(2) In the same doses the drug is an excellent analgesic in certain cases.

(3) In three cases of chronic articular rheumatism it affected a rapid restoration to health. In one case of acute rheumatism, while it lowered the temperature it did not influence the morbid process.

(4) The drug was not suitable for hypodermic use on account of its slight solubility in cold water.

(5) The author did not observe bad effects on the digestive or other organs, even when the drug was given in daily doses of three grammes. The urine, however, often became intensely black, but did not give the reaction of Hertl.

Terpene Hydrate in Bronchitis.

William Murrell, in the *British Medical Journal* for March 4, 1893, again calls attention to the value of turpene hydrate, a hydrate of turpentine, in the treatment of affections of the bronchial and nasal mucous membranes. It is a solid, and has somewhat the appearance of chloral hydrate. Its odor, which is slight, resembles that of pure terebene. The great difficulty in the way of its administration is that it is practically insoluble in water. It is usually said to dissolve in alcohol in the proportion of one in ten, but many specimens are far less soluble. For some months past Dr. Murrell has prescribed it in a solution containing five grains to the half ounce, made up with simple elixir, and flavored either with tincture of Virginian prune and syrup of tar, or with aqua laurocerasi. Terpene not only relieves cough and lessens bronchial secretion, but is a diuretic, and has been used with advantage in neuralgia.

OBSTETRICS.

UNDER THE CHARGE OF

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ASSISTED BY

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Occluded Os up to the Second Stage of Labor, When Incision was Made.

Oppenhimer (*Viriginia Medical Monthly*, Vol. xx, No. 1) reported at a meeting of the Richmond Academy of Medicine and Surgery the following case: Patient was a primipara, aged 17 years, in labor at term. The pains were good and vertex presenting. No os could be detected when the head engaged at the superior strait. The head was invested in a shiny membrane, which was slit up and the opening dilated, forceps applied and the child delivered. Oppenhimer suggested that some lesion of the neck of the womb after conception had probably caused entire occlusion of the os.

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Cæsarean Section for Shoulder Presentation.

Hubert (*Revue Médicale*, January 31, 1893) reports the following case: Patient, a V-para, was admitted to hospital in labor at term, the membranes having ruptured twenty-four hours previously. She gave a history of previous labors having been tedious, and was of small stature, owing to rickets. After being placed under chloroform, the left shoulder was found presenting in a dorso-anterior position, the left arm prolapsed and the head high up above the pubes. The uterus was firmly contracted and the child dead. Version could not be performed on account of the narrow pelvis. An attempt was made to decapitate, but as the blunt hook could not be properly adjusted it was abandoned. While endeavoring to get at the neck by pulling on the prolapsed arm the limb was torn off. Cæsarean section was, therefore, performed by Daudois and Hubert. The child was very large, and it was found necessary to introduce the hand through the incision into the uterus and extract by the feet. The placenta came readily away. Patient fully recovered.

Sudden Deaths in Childbed.

Ehrendorfer (*Wiener medicinische Presse*, Nos. 10, 20, 1892) publishes two cases of sudden death after delivery: The first case was that of a primipara, 22 years of age, who had experienced an easy labor, a lying-in without rise of temperature, and had left her bed on the tenth day. On the eleventh day she fainted and suffered with headache, vomiting and tonic and clonic spasms of the upper extremities, with clonic spasms of the left leg. On the twelfth day there was an impairment of articulation and paralysis of the right arm. The pupils were dilated, and the right side of the mouth drawn down to the right. There was a bending of the body to the right. Death occurred seventeen hours after the initiatory fainting fit. After death embolism and thrombosis of the superior longitudinal sinus was found, with thrombosis of the lateral sinus and left internal jugular vein. There were intra-meningeal hemorrhages and incipient cerebral softening. No evidence of sepsis was discovered.

The second case was also that of a primipara, aged 22 years, who had been delivered instrumentally of twins, and manually of an adherent placenta. She died one hour after delivery. There was fatty degeneration of the heart, with dilatation of the right ventricle, purulent bronchitis, emphysema and other lesions. Despite this, pregnancy had preceded satisfactorily to term.

Hemorrhage in the New Born.

Lockhart, of Edinburgh (*Montreal Medical Journal*, Vol. xxi, No. 10), reported the following case before the Canadian Medical Association, at Ottawa, September, 1892:

The child was 24 hours old, and had been delivered by axis-traction forceps, with comparatively little exertion. Its placenta, which came away easily, was found to be studded with calcareous particles. After birth there were no marks of violence to be observed on its body. When seen by Lockhart blood was coming from the arms, mouth and nose. From the anus it oozed continuously, while from the mouth and nose it came in gushes as though vomited. The blood was dark and venous, showing no tendency to clot. No lesion of the mucous membrane of the mouth could be found. There were no cerebral symptoms nor paralysis. Its suction power was good. Despite energetic treatment the child died a few hours after.

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Lockhart suggests, as a possible cause, some obstruction in the portal circulation, preventing the return of blood to the heart, and causing an increased backward pressure. As a result, the gastric and intestinal capillaries would give way. He believes also that there was an altered condition of the blood, such as occurs in hemophilia. This would account for the blood passed having no tendency to coagulate.

Fetal Placental Circulation During Parturition.

Caviglia (*Nouvelle Archives d'Obstétrique et de Gynécologie*, December, 1892, January and February, 1893), after a series of careful observations, has arrived at the following conclusions:

(1) Blood passes from the placenta to the child during the process of birth, through uterine pressure, retraction and sometimes contraction.

(2) The constant positive pressure of the fetal vena cava superior forms a resistance opposed to the passage of placental blood by the fetal organism. This resistance is inferior, however, to the force acting upon the placenta, and is not sufficient to prevent the afflux of blood.

(3) Respiration takes away cardiac force and blood from the systemic circulation, hence it diminishes venous pressure and the special resistance referred to in the second conclusion.

(4) The afflux exists but to a slight extent in cyanotic asphyxia, owing to the high blood-pressure in the venous system of the child.

(5) The arrest of the fetal-placental circulation does not depend upon the diminution of pressure in the fetal arterial system, but on the occlusion of the placental capillaries by uterine pressure. When the placenta is expelled early, the pulsations may continue almost indefinitely.

(6) The passage of blood from the placenta to the new-born child often continues after the umbilical arteries have ceased to pulsate.

(7) During the first moments after birth the child's weight occasionally diminishes, on account of relaxation of the uterus. Too early ligature, therefore, involves the risk of removing from the child's circulation not only all the reserve blood, but also some of the blood necessary for the child at any given moment.

The last two conclusions are important in practical obstetrics.

A Case of Sudden Delivery.

Leblond, of Paris (*Abeille Médical*, August 1, 1892), reported the case of a servant girl who, several weeks before the expected termination of her pregnancy, awoke suddenly during the night with an intense desire to evacuate her bowels. With one single straining effort her child was expelled. Leblond does not state whether the woman was a primipara or multipara. Zeiss, of Erfurt (*Centralblatt für Gynäkologie*, No. 9, 1893), has observed a similar case of rapid expulsion in a delicate primipara at the end of her pregnancy.

Care and Tratment of the Nipple in the Gravid and Puerperal States.

Marx, of New York (*Medical Record*, February 11, 1893), calls attention to the present popular method of caring for the nipple during pregnancy. He disfavors any manipulative procedures, and believes in letting the nipples absolutely

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alone. Only for cosmetic reasons does he advise ablutions with cold water. He advises that they should be protected from external irritation by the corsets or corset-bones, by appropriate shields or absorbent cotton. He recommends that the patient should stop wearing corsets, if possible, wearing instead a corset cover to support the breast. Should the nipple be inverted it should be gently drawn out three times a week by means of a breast pump. When the nipples are tender or sore a 10 per cent. ichthyol-lanoline salve is applied.

Fissures and erosions he treats with strong ichthyol ointment, the formula of which is the following:

℞. Ichthyol 3j
Lanoline . . . . . .
Glycerine . . . . . āā 3iss
Olei Olivæ . . . . . ♏xv. M.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

Hysterectomy for Soft Myoma of the Uterus.

Charles P. Noble (*Annals of Gynæcology and Pædiatry*, April, 1893) reports a successful case of hysterectomy in a patient aged 57 years, who had noticed a tumor for three years. She had profuse hemorrhage and was exceedingly weak in consequence of this drain upon her strength, and curetting was performed as a temporary measure of relief. No improvement followed and removal of the uterus was determined upon. The method adopted was similar to that pursued by Baer—tying off the broad ligaments, amputating the cervix at the level of the vagina and covering the stump with peritoneum, thus making it extra-peritoneal. The author advises the routine disinfection of the cervical canal, and the introduction, in certain cases, of a strip of gauze to render drainage through the cervical canal more certain. The tumor was large, filling the pelvis and projecting into the abdominal cavity. Patient had an uneventful convalescence.

Vaginal Ligation of a Portion of the Broad Ligaments for Uterine Tumors or Hemorrhage.

Franklin H. Martin (*The American Journal of Obstetrics*, April, 1893), proposes the ligation not only of the uterine artery, but the entire base of the broad ligament—tied *en masse*. The idea is to ligate in such a manner as to prevent the establishment of collateral circulation being derived from branches of the uterine artery which spring from the main trunk quite distant from the uterus. The ligation of the uterine artery as a step in other procedures—as preparatory to operation for uterine cancer, etc., or for the control of hemorrhage due to lacera-

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tion of the circular artery of the cervix—is not a new idea, but the author claims originality for his method of ligating the broad ligament to the extent, if necessary, of even including the ovarian artery of one side.

The operation consists in drawing the cervix uteri to the side opposite the field of operation and incising the vaginal tissues over the site of the broad ligament. Passing the index finger into the incision and locating the pulsating vessels and ligament, introduce a curved needle armed with No. 12 braided silk and embrace the ligament and tie firmly about an inch from the uterus. After cutting off the ligature ends, unite the vaginal incision by catgut sutures.

The effect of this ligation upon the uterine circulation is immediately apparent in the cervix; it becomes as pale as cartilage. The author reports two cases upon which he operated by this method.

One was a case of multiple fibroid (intramural) and the other a large myofibroma. Both cases were troubled with hemorrhage, and treatment had not benefited them much. The bleeding ceased a few days after the operation, and was checked immediately after ligating. No complications arose, and the patients were able to leave the hospital a week after the operation. The following conditions are suggested as suitable for the testing of the value of this procedure:

(1) Acute hemorrhage of the cervix from all causes, acute or chronic, which cannot readily be controlled by milder methods, as (*a*) rupture of the cervix in childbirth, by operation, or by any other cause; (*b*) cancer of the cervix.

(2) Hemorrhage from the body of the uterus as a result of abnormal growths: (*a*) fibro-myomata; (*b*) sarcoma; (*c*) carcinoma; (*d*) intractable hemorrhagic endometritis.

(3) For the purpose of changing the nutrition of myofibromatous tumors so that they will shrink in size and, when of small dimensions, disappear altogether.

THE TREATMENT OF ENDOMETRITIS BY CRAYONS OF SULPHATE OF COPPER.

The *British Medical Journal*, January 14, 1893, abstracts a paper read by BOURSIER (*Arch. de Tocol. et de Gynèc.*) before the Bordeaux Obstetrical Society upon the above subject. The report concerned twenty-seven cases; from two to eight points having been introduced into the uterine cavity of these cases, according to the degree of toleration. The after histories of twenty cases were collected, and it was found that not one of these had been cured, although a few had less pain and leucorrhea.

The treatment was not devoid of danger, and occasionally the introduction of a single crayon had produced violent colicky pains radiating from the uterus, more or less metrorrhagia and thick yellow discharge.

Four cases of mild copper poisoning were recorded. In the discussion, Coyne stated that he had seen very deep eschars resulting from this form of treatment—eschars dipping into the muscular tissues; and Lafour referred to the use of the curette as a more exact, more surgical and safer method of treatment.

UTERINE CANCER ASSOCIATED WITH FIBROID TUMOR.

FRANK (*Wiener med. Wochenschrift*, No. 50, 1892) records the history of a woman, aged 41 years, from whom a fibroid tumor of the uterus was removed. The capsule had a suspicious appearance, and a small piece was cut off for microscopic examination. Adeno-carcinoma was detected, and the uterus was extirpated ten days later; the patient recovered. Frank remarks that cancer of the cervix

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not infrequently accompanies myoma of the fundus of the uterus, but in the case reported the pathological changes were confined to the cervix, where the fibroid first appeared, the mucosa becoming diseased and ultimately cancerous.

Menorrhagia and Peritoneal Adhesions in Women.

Tipiakoff (*Centralblatt für Gynäkologie*, No. 52, 1892) reports three cases in which he operated for the relief of symptoms due to dense peritoneal adhesions. One of his patients, a widow of 38 years, had, in addition to pelvic pain, continuous bleeding between her periods.

At the operation there were found numerous and dense adhesions existing between the intestines and posterior surface of the uterus and appendages. Hyperemia of the womb and tubes was present, and in severing the adhesions the uterus was lacerated, and free bleeding occurred, which was controlled by the use of the thermo-cautery. The patient had no more bleeding between the periods after the operation. Exploratory incision and separation of adhesions is recommended for these cases of old peritonitis. The opinion is advanced that menorrhagia or metrorrhagia occurring in such cases may arise from the congestion of the uterus and appendages, induced by the action of these bands of adhesions.

Vaginal Myomectomy "Par Morcellement."

James Murphy (*British Medical Journal*, February 11, 1893) reports the history and gives a diagram of a case of myoma of the uterus which was removed piecemeal through the vagina. The reason for the operation was the increasing size of the tumor, which occupied the entire pelvis and extended almost to the umbilicus, and caused pressure upon the bladder and rectum. There had been some hemorrhage and pain, but these symptoms were not so urgent as the trouble induced by pressure. It was thought best to operate by this method in preference to performing hysterectomy by abdominal section, for the reason that the latter method would have left such an enormous opening between the abdomen and vagina that it would have been difficult, if not impossible, to close, whereas by removing the tumor piece by piece, and allowing the uterus to remain, the peritoneum is not opened, and the relations of the organs are not disturbed. The patient was 42 years old, and had one child 18 years old. The tumor had troubled her for several years, and she had been obliged to use the catheter for some time. The operation simply consisted in incising the capsule from before backward and stripping it off as far as possible, and then introducing a pair of forceps and removing the mass piece by piece as rapidly as possible. About three-fourths of the tumor was removed in this way, and the remainder was detached by the hand. The cavity was packed with wood-wool to check some bleeding, and was removed the following day. The uterus now feels like an ordinary multiparous uterus, and patient is in perfect health.

Glass Trocars for Tapping Ovarian Cysts.

Howard A. Kelly (*The American Journal of Obstetrics*, April, 1893) gives a description, with illustration, of a glass trocar for evacuating ovarian cysts after opening the abdomen. The glass trocars are easily cleansed and sterilized by steam or boiling soda solution, and the clear glass "embodies the appearance as well as the principle of cleanliness," and at the same time replaces the various forms of metal trocars, which are much more expensive and more difficult to keep clean. The trocars are made in two sizes—larger and smaller—one and one and a-half centimetres in diameter respectively, and each twenty-four centimetres long.

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Sarcoma of the Uterus Previous to Puberty.

Thomas C. Smith (*The American Journal of Obstetrics*, April, 1893) refers to a report made by him about ten years ago of a case of this disease occurring in a little girl 3 years of age. When first seen, there was a tumor about the size of a chestnut protruding from the vaginal orifice. The child was anesthetized and this and other masses were removed. About half a pound of mucous polypi was taken away from the uterus and subsequently examined by the microscope. This examination proved the growth to be "round-celled sarcoma" of the uterus. A slide was prepared and presented to the Army Medical Museum, and a recent re-examination of the specimen by the acting curator of the museum confirms the original diagnosis of this condition, which is so rare in childhood.

Vaginodynia—Perineal Spasm.

E. F. Frost (*Medical Record*, April 8, 1893) makes a distinction between this condition and vaginismus, and states that the latter trouble concerns simply the introitus vaginæ, while vaginodynia is a spasmodic affection of the whole vaginal canal—the anterior and posterior vaginal walls, the tissues of the cervix uteri, and the perineum.

The condition appears among both married and single women, and is almost always associated with a neurotic diathesis.

The writer has seen a few cases only in which the disturbance arose in patients who did not have such a temperament, and these cases were due to traumatism—too severe manipulation in making a vaginal examination, and too strong applications to the uterine cavity. Careful physical examination in the majority of cases fails to discover a cause for the spasm, and it is, therefore, ascribed to emotional conditions—a reflex neurosis. The clinical history of vaginodynia is that of a sudden attack of neuralgic pain throughout the female reproductive organs, without apparent adequate cause; attacks are severe, with sharp lancinating pains so intense as to cause such agony that the physician is summoned in great haste. If left to itself the attack will linger for several hours; the pains will gradually leave, and the patient fall asleep from exhaustion. In the diagnosis of this condition we must differentiate between vaginitis, cystitis, retention of urine, passage of a renal calculus, coccygodynia, dysmenorrhea, and neuralgia of the rectum or ovary. The most difficult differentiation is to diagnosticate between vaginodynia and vaginismus—the real difference consisting in the location and extent of the spasm.

The treatment consists in relaxing the perineal spasm, and the first measures likely to be employed by the physician may be the administration of morphia, ether or chloroform, to control the urgent symptoms; but if the exact nature of the trouble is known the most successful plan of treatment is to introduce the index finger and middle fingers into the vagina, and with the thumb on the outside as a fulcrum, pull the perineum backward toward the coccyx. The pressure should be maintained for from ten to fifteen minutes, or until the perineal muscles are tired out.

The relief experienced by the patient is instantaneous. Other periodic attacks are likely to follow after a few days, or possibly in a few hours. During the intervals between these attacks certain drugs may be useful, the writer having found the fluid extract of conium, and fluid extract of belladonna, to serve him the best. It is the belief of the writer that this perineal spasm is often the most disturbing symptom in many cases of dysmenorrhea.

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PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

Experimental Investigation Upon the Regeneration of Striated Muscle.

E. Kirby (*Beiträge zur Pathologischen und zur Allg. Path.*, Band xi). These experiments were conducted in such a manner that the process of regeneration could be studied in paralyzed as well as normal muscles. Rabbits were the animals used. When paralyzed muscles were to be studied, the nerve was cut five to ten days before the muscle was injured. As the methods employed by previous observers, for injuring the muscles, were such as to bring about considerable inflammatory reaction and changes, it occurred to Kirby to use *ligation* as the means of injuring the tissue. The muscle was exposed by antiseptic operation, and its upper third surrounded by a silk ligature of medium thickness. The ligature was tightened until the lower part of the muscle was of a dark blue color. After three or three and a half hours the ligature was cut off and the wound sewed up. After varying intervals of time the animals were killed and the muscles cut out, stretched on cork and hardened three days in Flemming's solution; subsequently in alcohol, then imbedded in celloidin. The sections were stained partly with saffranin alone, and partly with picric acid.

The results of the experimentation agreed in the main with those of Askanazy and Nauwerck. The changes consist in an increase in the size, especially the length, of the muscle nuclei, increase in the amount of their chromatin, and their division into fragments. From the second day on, Kirby found the muscle nuclei multiplying by mitosis, and lying either in the contractile substance or within the sarcolema where the contractile substance was destroyed.

The operation of the ligature is rather variable. It generally produces crushing and tearing of the contractile substance, but little inflammation. When the crushing is rather slight, and the wound heals promptly, the inflammatory change consists of a moderate accumulation of leucocytes in the periphery of the muscle. Considerable pressure and septic infection of the wound increase the inflammation, and also the difficulty of following the changes in the muscle. The best effect is when the compression only interrupts the continuity of the muscle, but does not kill the connective tissue. In separated fragments the changes of necrosis, hyaline and waxy degenerations, etc., can soon be observed.

Mitotic changes are observed in two days, and continue sixty days or more. Mitosis affects also the connective tissues and vessels, and produces a granulation tissue which subsequently forms connective tissue.

Mitosis of the muscle cells forms large cells somewhat resembling epithelial cells. In about two weeks protoplasmic masses (giant cells), oval or elongate, are found. Their nuclei are large, oval, and often show mitosis.

The muscle fibres, which in the beginning were slightly altered, can undergo a splitting, by the end of the first week, by which two or more sharp processes project from the contractile substance, or which lead to a peculiar longitudinal

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splitting of the muscle, which gives rise to a net-like tissue, with long narrow meshes, or leads to the formation of long narrow bands. The circumstance that these narrow bands are found instead of the old muscle fibres at the point of compression, show that they can grow out.

There can be little doubt that these young fibres in part exist from sprouts and buds of the old fibres. So far the experimenter is in accord with Askanazy and Nauwerck, but now differs from them in concluding that this is not the only way in which the new muscle fibres are produced. He regards the above-mentioned giant cells as analogous to the muscle sprouts, and sees them grow into new muscle fibres. A valuable point is also gained by the observer, who found that the regeneration of muscles is in no way associated with the continuity of their nerve supply.

Histology of Indurating Fibrinous Pneumonia.

The microscope (*Münchener med. Wochenschrift*, January 17, 1893, Vol. XL, No. 3) showed, in the case examined, filling of numerous alveoli with polyp-like masses, attached here and there to the alveolar walls and projecting into the infundibuli. In between were found, more or less plentiful according to the part of the lung from which the section was taken, the ordinary lesions of croupous pneumonia—leucocytes, desquamated epithelium, and, between these, a network of fibrin.

Here and there were some little areas of softening or gangrenous patches, accumulations of leucocytes, destruction of alveolar septa, and exceptionally in the periphery, local accumulations of spindle cells of doubtful significance.

The above-mentioned polypoid masses consist of closely-packed spindle cells. In many alveoli the connection between alveolar wall and contents is very intimate, so that the connective tissue masses of the walls is widely attached to the contents. In the polypoid masses, lumps of fibrin are found, and here and there delicate vessels can be made out. Between alveoli which contain only spindle cells and those which contain the ordinary fibrinous exudate, all stages can be observed.

As the last stage of the indurating process, alveoli are found whose embryonal connective-tissue contents have united upon all sides with the alveolar walls; still later, alveoli in which wall and contents can no longer be distinguished from each other, being represented by a network of vessels and fibres; the final picture is a thick fibrilar connective tissue.

When the fibrin is stained by Weigert's method the fibres were found to pass through the alveolar walls so that large fibrin nets extending over large areas of the lung were formed.

The explanation of the indurating process is as follows: Any kind of an irritation of the connective tissue causes the sending out of sprouts into the contiguous alveoli and consequent organization of the fibrinous exudate from this alveolus by means of pours, through which we have seen fibrin filaments projecting; the embryonal tissue extends into the next alveolus, etc., producing everywhere organization and indulation. Here and there, where the epithelium is absent, vascular sprouts extend into the newly formed tissue.

Conclusions Regarding the Use of Drainage Tubes and Ligatures, and the Possibilities of Skin Disinfection Based upon Bacteriological Investigation.

Hunter Robb (*American Journal of Obstetrics*, Vol. XXVI, No. 6, 1892). Forty-five cases of laparotomy were studied, as follows: A thoroughly sterile sheet of rubber, large enough to reach from the symphysis pubis to the lower ribs,

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and from flank to flank, was placed over the abdomen. In the centre a slit was cut through which the drainage tube passed. Over the rubber was placed a piece of cotton about the size of the fist, previously sterilized by steam. Over this the ends of the rubber were folded, so that there was no possibility of the entrance of germs. Over this the other dressings were applied. Sterilized cheese-cloth strips were used to drain the tube. Bacteriological studies were made of the material adherent to the plug in the tube, from that on the sides of the tube, and from material obtained from the bottom of the tube by introducing a platinum loop.

In thirty-one of the cases the presence of micro-organisms was demonstrated, results negative in fourteen. The frequency of the occurrence of the different cocci was:

Staphylococcus albus	19 cases.
" aureus	5 "
Bacillus coli communis	6 "
Streptococcus pyogenes	3 "

The observations point clearly to the drainage tube as the source of infection.

Skin Disinfection.—The experiments on the skin of the abdomen were made by first cleansing with absolute alcohol, applied on sterilized absorbent cotton, then scraping with a sterile knife blade. From the lower layers of the skin, when oozing began, the cultures were made. In nineteen out of twenty-five cases micro-organisms were found. The most constant was Welch's staphylococcus epidermidis albus, which may be an attenuated form of staphylococcus pyogenes albus.

Forty-five observations were made upon stitches removed during and after operations on the abdomen and perineum. In these studies the presence of the skin coccus was demonstrated with great regularity. Such suture materials as offered few irregularities were found most free from the organisms, silkworm gut being the best.

From the experiments the conclusions are drawn that a wound of the skin, at some stage of its existence, nearly always contains bacteria. They occur both on the stitches and in the secretions.

The character and virulence of the organisms present will, of course, influence the process of healing.

The body temperature is invariably elevated if the bacteria are virulent; and, indeed, in cases where many of the less virulent organisms are found there is fever.

Different suture material offer different opportunities for bacterial development, and the catgut sutures would seem to be the best adapted to their growth.

Undue constriction of the tissues by ligatures must be avoided if they are expected to resist bacterial invasion.

The best methods for the disinfection of the operator's hands are said to be as follows:

(1) The nails to be kept short and clean.

(2) The hands to be washed thoroughly for ten minutes with warm water and soap, a sterilized brush being used.

(3) The hands are to be immersed one to two minutes in a warm saturated solution of permanganate of potassium.

(4) Next they are placed in a warm saturated solution of oxalic acid until complete decolorization of the permanganate occurs.

(5) They are next washed off with sterilized salt solution or water.

(6) They are immersed for two minutes in 1:500 bichloride solution.

A bacteriological study of material obtained from around and beneath the nails was always negative after this process.

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MISCELLANEOUS.

AN ADDRESS DELIVERED BEFORE THE ASSOCIATION OF EX-RESIDENT AND RESIDENT PHYSICIANS OF THE PHILADELPHIA HOSPITAL.[1]

GENTLEMEN:—Another year has brought us together around the social board, a circlet composed of many-colored beads upon a single string, whose name is Blockley. Its ancient and its modern memories unite in one band men of diverse ages and careers—the few remaining patriarchs who look back with a sad smile upon the withered flowers, the shattered hopes that strew their path, and the young, who are pressing forward eagerly to claim the prizes that fortune may have reserved for them.

Before asking your attention to what I may have to say of our social reunions, I must not fail to remind you that there is a vacant place at this table, and that only a year ago it was filled by the patriarch of our fraternity, whom you had also honored by making him its president.

On the 8th of March, 1892, at Wilmington, Del., and in the 80th year of this age, Dr. Lewis Patton Bush died, after a life devoted to his profession and to the welfare of his native town. He was respected and honored by his townsfolk and his medical brethren, and beloved by them for the simplicity of his character.

As one of my colleagues at Blockley, in 1836, I learned to respect and admire him for the sterling qualities that distinguished him throughout his life. An accomplished practitioner, a public-spirited citizen, he led a blameless and useful life, and deserves to be remembered among those physicians who have served best their profession and their fellow men.

It is these ardent neophytes who interest us most. "Let the dead bury their dead;" let them imagine, if they will, that "there were no great men before Agamemnon," and that "wisdom of a surety will die with them;" but let them not forget that the strength of every generation is in its younger men, and that whatever they have been, or are now, they will remain essentially in their maturer lives. I say *essentially*, but by no means in outward form or conduct. It is more than probable that if the incidents of our resident physician's life in the Alms-

[1] Read at the Sixth Annual Banquet, December 6, 1892.

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house Hospital a half century ago were reproduced to-day, it would be with a difference due mainly to the humanizing influence of the social, scholarly and professional culture of the young men of recent generations, and to better breeding on the part of the governing authorities. In a word, the whole institution has been raised above the inglorious level at which it bore its shame unblushingly in the olden time, and it can now justly claim that the tide of civilization has not swept by without fertilizing it, or bearing from it a salutary lesson to other public charities.

In these reforms you have all taken part, either as originators, supporters or administrators of the modern régime, and therefore, as belonging to this line of influential men, you can claim your share of the distinction to which all the physicians are entitled who served their apprenticeship in the wards of our great hospital.

But, much as every one of you must prize the professional rank to which this service entitles him, there are other and more personal ties which many of us have formed in "Blockley," in a spirit of comradeship with our immediate colleagues, first of all, and then with all the resident physicians who preceded or followed us in the service, a spirit that is a cordial to every generous mind, and must have animated those who originated these pleasant *symposia* where the veterans delight to fight their battles o'er again, and the new recruits listen eagerly to the story. If men who have only sordid interests in common learn to respect one another, how much stronger must be the feeling, how much closer the tie between those who have lodged beneath the same roof, eaten at the same table, pursued the same studies under the same teachers, and, day by day, with all the open-hearted expansiveness of youth, confided to each other their hopes, their projects and their fears! It was, indeed, a happy thought of some among you to bring together for social enjoyment physicians whose early experience had been so nearly identical, and enable them to strengthen the weakening ties, to revive the fading recollections, and soften the asperities which almost invariably arise in professional rivalry. Unless a man be really bad, the surest cure for prejudices against him and for his own defects of character is a baptism in the lustral waters of society. It is said that "even the devil is not so black as he is painted," and surely the charity we extend to the arch-fiend ought not to be withheld from our fellow-men and professional brethren.

The humanizing influence of social intercourse has been lauded in every age, and even the banquets of the gods of Olympus tended to preserve the peace of heaven. Poets in all ages have sung of it; like culture in its more purely intellectual forms, *Emollit mores nec sinit esseferos*. It makes men kind, urbane, courteous, unselfish; teaches

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them to feel that their associates are entitled to the same consideration as themselves, and to refrain from speaking evil of others; to repress all manifestation of their own dislike or want of sympathy; to cultivate a spirit and a habit of comradeship which will prompt them to defend an absent colleague, or at least to add nothing of their own to the weight of suspicion or obloquy that may rest upon him.

One need not have lived very long in the active world to discover that it is an arena of strife, in which rivals are tempted to use stratagem and even falsehood to place stumbling blocks in each other's way. And yet we may be sure that each one in his heart abhors the very tactics he employs upon the shallow plea that others do no better than himself. No more certain antidote to this corrosive poison can be found than social reunions, where the guests must at least put on "a wedding garment," and for the time clothe themselves in courtesy and charity. So, by degrees, they learn how much worthier of regard than they supposed are the rivals they disliked and depreciated, and how much happier one becomes by thinking well and speaking well even of those of whom he thinks he has a right to complain.

It is not enough that a man should be sound in mind and blameless in character to achieve success in life. It is not true that worth *alone* "makes the man, and want of it the fellow." The highest intrinsic worth may be neutralized by boorish manners or a spiteful tongue. In one sense it may be true that—

> "The rank is but the guinea's stamp—
> The man's the gowd for a' that."

But of how much use is unstamped gold compared with minted money? How small is the practical worth of any attainments, or any virtues even, if they lack the stamp and polish of social culture!

History and observation teach the persistence of inherited qualities, for ever and anon the savage features of our ancestors break out unexpectedly. The child of civilization sheds only too rapidly his garb of culture when he falls among barbarians, and tends to revert to his primal type of humanity; and in like manner the aboriginal savage, however schooled, rarely adopts the refinements of civilization which subordinate the individual will to social law. We have, indeed, but little control of man's inner nature; but it is possible to repress such manifestations of it as disturb the harmony and peace of society. What civil and criminal laws are for mankind in general, so is the usage of the educated and refined for us. It is not a law expounded and enforced by judicial tribunals, unless the unspoken judgment of society fails of its effect. It is restraining rather than punitive, and best exhibits its power by preventing catastrophes.

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It is like the lubricating substance applied upon the joints of an engine that prevents its creaking, grating, jarring and clanking. It is like the oil diffused upon the angry ocean that yet has power to still its roar and still its angry waves to peace.

By whatever means men who are destined to tread the same road in life can be brought into friendly contact, the greater will be their tendency to feel, think and act in common, and by their union develop a strength that will not only promote their own welfare and happiness, but the dignity and prosperity of their profession as well.

Time was when in this city almost every evening in the week during the winter was occupied by some social entertainment of physicians. To their influence, which did not altogether end with their extinction, may be attributed the remarkable harmony which has so long distinguished the medical profession in Philadelphia. "It is the heart that civilizes, not the head," is a judgment illustrated by the history of all civilized nations. Next after home-life, it is the soil from which spring the choicest flowers of civilization. It is not the least of the cohesive forces which have preserved China unchanged from a period when Europe was still peopled by savages, and which has rendered its inhabitants the most thoroughly civilized of all nations, albeit its standards are different from our own.

If friendly, convivial assemblies like this one were more multiplied among us, we may rest assured that physicians would become more harmonious and cordial, that social intercourse would lead to personal friendships and professional partnerships, and that the dignity and usefulness of our calling would become more firmly established.

As it grows by the annual accretion of members who rank with the foremost in their respective schools, the character of your association will gain in dignity and influence, and its members will not forget that they owe their strength and success not only to the Alma Mater who gave them birth, but also to the exuberant nourishment of their foster-mother—BLOCKLEY.

ALFRED STILLÉ, M.D., LL.D.
Emeritus Professor of Practice of Medicine,
University of Pennsylvania.

THE COMMENCEMENT EXERCISES OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE 119th Annual Commencement of the Medical Department of the University of Pennsylvania was held at the American Academy of Music on Wednesday, May 10, 1893, at noon.

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The degree of Doctor of Medicine was conferred on 190 graduates of the Medical Department, and the degree of Doctor of Dental Surgery on 16 graduates of the Department of Dentistry.

The valedictory address was delivered by William F. Norris, M.D., professor of ophthalmology.

The following prizes were awarded:

The alumni medal, offered by the Alumni Society to the member of the graduating class attaining the highest general average in examinations, was awarded to J. Dutton Steele, Jr., of Pennsylvania.

The prize of obstetrical forceps offered by the Professor of Obstetrics for the best report of a case of obstetrics occurring in the University Maternity Hospital was awarded to Henry E. Wetherill, with honorable mention of Herman A. Burkhart.

The prize of a Thoma-Zeiss blood-counting apparatus and a Fleischl hæmotometer offered by the Professor of Clinical Medicine for the best report of his clinics during the past year, was awarded to Joseph W. Brandon, with honorable mention of George C. Jameson and E. Albert Woldert.

The prize of a pocket-case of instruments, offered by Dr. H. R. Wharton, demonstrator of surgery, for proficiency in fracture dressings, operating and bandaging, was awarded to James R. Hunt, with honorable mention of Luther M. Allen and Levi B. Cochran.

A prize of a pocket case of instruments, offered by Dr. H. R. Wharton to a member of the first year class for proficiency in bandaging was awarded to William Stump, with honorable mention of James H. Sallon and William H. Dingle.

The prize of a copy of "Ashhurst's Surgery," offered by Dr. Richard Hark, demonstrator of osteology, was awarded to Clinton J. Kistler, of the first year class, for the best examination in osteology, with honorable mention of H. M. Delano, E. Kircher and Lewis E. Livingood.

The prize of $25 offered by the D. Hayes Agnew Surgical Society for the best anatomical preparation made in the dissecting room was awarded to Arthur W. Booth, with honorable mention of Manuel Aguilar, William Stump and Henry S. Greenleaf.

The Zentmayer Prize of a microscope for the best examination in histology and embryology was awarded to Patrick H. McGovern, with honorable mention of W. Hersey Thomas.

The prize of a case of autopsy instruments, offered by the Demonstrator of Morbid Anatomy for the best report of his lectures, was awarded to Henry E. Wetherill.

The prize of a hæmocytometer, offered to the member of the first year class furnishing the best report of the lectures of physical diag-

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nosis, was awarded to Edward R. Schreiner, with honorable mention of Joseph H. Griggs and Edwin Zugsmith.

The prize of a copy of "Treves' Surgery," offered by Edward Martin, clinical professor of genito-urinary diseases, for the best report of his lectures, was awarded to James T. Hamilton.

MEETING OF THE SOCIETY OF THE ALUMNI.

THE annual meeting of the Society of the Alumni of the Medical Department of the University of Pennsylvania was held at Industrial Hall on the evening of May 9th, 1893, at 8 o'clock. The ballot for the election of officers for the ensuing year resulted as follows:

President—Trail Green.

Vice-Presidents—Meredith Clymer, W. S. W. Ruschenberger, Claudius Mastin, Hiram Corson.

Secretary and Treasurer—Joseph P. Tunis.

Executive Committee—Horace Y. Evans, John Ashhurst, Jr., R. A. Cleemann, Samuel S. Stryker, De Forest Willard, Roland G. Curtin, Wharton Sinkler, S. D. Risley, Wm. Barton Hopkins, Charles W. Dulles, John H. Musser, John B. Deaver, Thomas R. Neilson, Judson Daland, John B. Shober, Elliston J. Morris, H. A. Doan, N. L. Johnson, Archibald G. Thompson, Alexander R. Craig.

Immediately following the business meeting upward of 250 men partook of a banquet in an adjoining room. Representative alumni responded to the usual toasts, and the meeting was declared by a number of those present to have been the most successful one of the kind ever held in this city.

Any alumnus wishing to join the society may communicate directly with the Secretary and Treasurer, 129 South Eighteenth Street, Philadelphia.

A NEW PROFESSORSHIP IN THE UNIVERSITY.

AT the last meeting of the Trustees of the University, Dr. Charles K. Mills was elected Professor of Mental Diseases and of Medical Jurisprudence.

The course in mental diseases will be elective to the third and fourth year students, and that of medical jurisprudence will be compulsory for students of the Auxillary Department of Medicine, and elective to the fourth year class.

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HOSPITAL APPOINTMENTS OBTAINED BY GRADUATES OF THE UNIVERSITY.

THE following table indicates the number of hospital positions obtained in competitive examinations by University graduates. The number of University graduates is given in the first column of figures, and the total number of available appointments in each hospital in the second:

	U. of P.	Total.
Philadelphia Hospital (Blockley)	10	16
St. Agnes' Hospital	2	4
St. Mary's Hospital	3	3
Children's Hospital	2	2
Methodist Episcopal Hospital	1	2
Howard Hospital	1	2
St. Timothy's Hospital	1	1
Presbyterian Hospital	4	6
St. Joseph's Hospital	2	2
Polyclinic Hospital	3	4
Reading Hospital, Reading	1	1
St. Joseph's Hospital, Reading	1	1
Allegheny General Hospital, Allegheny	2	3
Wilkesbarre Hospital	2	2
St. Luke's Hospital, Bethlehem	1	1
Harrisburg Hospital	1	1
Mercy Hospital, Pittsburgh	4	4
West Penn Hospital, Pittsburgh	1	2
Cooper Hospital, Camden, N. J.	2	2
King's County Hospital, N. Y.	1	1
	45	60

Five appointments to the University Hospital, and seven to hospitals where no examinations are held, have not been added to the above list.

CLIMATE AND CONSUMPTION.

THE Congress of Medico-Climatology will convene in the Art Building, in Chicago, May 29, continuing one week. A choice programme has been arranged, and many of the most noted climatologists have promised to be present. This congress promises to be one of the most interesting that will meet during the World's Fair year. Thursday, June 1, has been appointed a field day for the discussion of the "Causative and Curative Relations of Climates to Consumption." Reports from all parts of the world will be presented. All physicians are cordially invited to be present.

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THE ENTERTAINMENT OF PHYSICIANS AT CHICAGO DURING THE WORLD'S FAIR.

AT a meeting of the Joint Committee of the Chicago Medical Profession on World's Fair Entertainment, held at the Sherman House, November, 1892, the establishment of a bureau of information and service was delegated with approval and endorsement to Charles Truax, Greene & Co., the committee reserving to itself the duty of such social entertainment of visiting physicians during the continuance of the Exposition as may seem desirable.

This action was confirmed at the final meeting of the Joint Committee, February 25, 1893, and on application of the Practitioners' Club and the South Side Medical Club, the matter of social entertainment was delegated to them, with full authority to act in the capacity of entertaining bodies, with the retention of the Chairman and its American and foreign Secretaries already appointed:

Chairman, Dr. Chas. Warrington Earle; *American Secretaries*, Dr. Archibald Church, Dr. Geo. Henry Cleveland, Dr. John C. Cook, Dr. J. C. Culbertson; *British*, Dr. Sanger Brown; *German*, Dr. F. C. Hotz; *French*, Dr. Fernand Henrotin; *Spanish*, Dr. E. J. Gardiner; *Italian*, Dr. A. Lagario; *Swedish*, Dr. K. Sandberg; *Canadian*, D. R. D. McArthur.

The scope and duties of the above secretaries will be designated in the future.

NECROLOGY.

DR. CHARLES CARROLL LEE died at his home in New York City on the 10th of May of heart failure.

Dr. Lee was a great-grandson of Charles Carroll, of Carrrollton, one of the signers of the Declaration of Independence. He was born in Philadelphia on March 24, 1839, and was graduated from the Medical Department of the University of Pennsylvania in 1859. He was assistant surgeon in the United States Army during the War of the Rebellion. At the time of his death Dr. Lee was president of the Medical Society of the County of New York.

Notice has just been received of the death of DR. JAMES H. MCMILLAN at St. Louis, Mo., on July 25, 1892. Dr. McMillan was graduated from the Medical Department of the University of Pennsylvania, May 1, 1888. After graduation he was elected one of the

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resident physicians to the Philadelphia (Blockley) Hospital. After completing his term of service here, he located in St. Louis, where his noble character and his professional skill endeared him to a large circle of physicians and friends. While in the enjoyment of perfect health Dr. McMillan was suddenly attacked with appendicitis on July 20, and died on the date given above.

BOOK NOTICES.

A TEXT-BOOK OF THE THEORY AND PRACTICE OF MEDICINE BY AMERICAN TEACHERS. Edited by WILLIAM PEPPER, M.D., LL.D., Provost, and Professor of the Theory and Practice of Medicine and of Clinical Medicine in the University of Pennsylvania. In Two Volumes, Illustrated. Vol. I. Philadelphia: W. B. Saunders, 1893.

The first volume of this excellent work opens with a chapter on hygiene, by Dr. John S. Billings, whose reputation on matters pertaining to sanitary science is a sufficient guarantee of the value of this article. He discusses in an interesting manner the causes of disease, immunity, disinfection, isolation, food, exercise, clothing and bedding, occupation, habitation, water supply, sewage disposal, horse sewerage, ventilation, disposal of the dead, and sanitary jurisprudence. The need of a thorough knowledge of hygiene to the practitioner cannot be overestimated, and the importance of the subject fully justifies the prominent place which it has been given in this text-book. The public hygiene of to-day, we are told, is only fifty years old, but the progress which it has made in this time is probably unsurpassed by any other department of medicine.

The continued fevers, for the most part, have been discussed by Dr. William Pepper in an eminently practical way. The subject has been handled with unusual care, and the minutiæ of diagnosis and treatment, so important to the practicing physician, have been freely admitted. The suggestions of modern therapy have been critically weighed and recommended when not found wanting. In the treatment of the fevers the author strongly advises the systematic use of the cold bath wherever it is practical, and speaks a warning word against the promiscuous use of antipyretic remedies, a warning fortunately not so necessary now as it was but a short time ago.

In considering the treatment of typhoid fever Dr. Pepper calls attention to modern intestinal antiseptics, but still holds a decided preference to nitrate of silver. In speaking of this drug he remarks: "My own belief is that this remedy is a safe and useful part of the regular treatment of typhoid fever, and that when begun early and continued judiciously it helps in some degree to prevent the development of serious symptoms and intestinal complications. . . . Many ridicule the notion that any good can be done by such small doses of

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so unstable a salt, but the clinical evidence both in this disease and in gastro-intestinal catarrhs deserves consideration, and we know that we are dealing with a mucous membrane in a state of such morbid irritability that the ingestion of even a minute amount of unsuitable food may induce violent symptoms."

In reference to turpentine, the value of which has been seriously questioned in a recent work of a well-known authority, Dr. Pepper writes: "Not only is it a powerful antiseptic and a good stimulant, but its action on the mucous membrane in properly selected cases is excellent."

The chapters on the eruptive fevers and the class of affections represented by tetanus, anthrax and glanders have been furnished by Dr. James T. Whittaker, and have been described in a clear and authoritative manner. All that modern bacteriological research has added to the pathology and treatment of this important group of disease has been freely incorporated. After considering the generally accepted treatment of tetanus, the author remarks: "The hope of successful treatment lies in the use of the antitoxines derived from the blood serum of immune animals (dogs) or from the bodies of the bacteria themselves."

Dr. W. Gilman Thompson has written the articles on acute miliary tuberculosis, scrofula, syphilis, leprosy, diphtheria, erysipelas, malarial fevers, cholera and yellow fever. The monograph on cholera contains the most recent acquisitions to our knowledge of the pathology and treatment of this dread disease. Of the intestinal antiseptics the author believes that salol is the best, and suggests its use together with the enteroclysis and hypodermoclysis advocated by Cantani.

The chapters on mental diseases, the neuroses and organic diseases of the spinal cord have been contributed by Dr. H. C. Wood. To the general practitioner this part of the work will prove of great value. The author has turned aside from the beaten track, and has discussed this class of obscure diseases in a thoroughly practical style. In 225 pages he has given the clearest exposition of the subject with which we are familiar.

The concluding chapters on organic diseases of the brain, diseases of the nerves and muscles, and vaso-motor and trophic disorders are by Dr. William Osler. Upon these affections very little that is new could have been written, but Dr. Osler has succeeded by a well-chosen classification in making an abstruse subject unusually clear.

This representative text-book needs no recommendation at our hands. The various contributors have been wisely selected. Each is an authority upon the subjects he has presented. The editor and his co-laborers have ample reason to be proud of their work, which is a highly creditable exposition of medicine as it is taught in the best American schools. The typography, illustrations and binding of the work are up to the standard of its well-known publisher.

PRACTICE OF MEDICINE. By EDWIN T. DOUBLEDAY, M.D., and J. DARWIN NAGEL, M.D. Philadelphia: Lea Brothers & Co.

The above volume is one of the "Students' Quiz Series," edited by Bern. B. Gallaudet, M.D. The increasing demand for books of this

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class is a strong indication of their need, and it can scarcely be doubted that a concise text-book, free from redundancy, clear and accurate, fills an important niche in the student's library. To be of value the subject-matter should be brief, systematically arranged and logically classified. The description of the diseases should be carefully proportioned according to their frequency or importance, and, above all, should be absolutely accurate.

Among numerous defects in the present volume may be mentioned the omission of such important subjects as pyelitis, influenza, lithemia, cholera infantum, gastralgia, ulcerative endocarditis and hay fever, while such subjects as esophagitis, esophageal dilatation, embolism of the lungs and perinephritic abscess are each allotted a page. Few physicians would indorse the teaching that the exciting cause of malaria was a micrococcus, that the chief cause of emphysema was forcible inspiration, that the term diabetes was synonymous with glycosuria, that hypertrophy and dilatation of the heart are generally caused by extreme physical exertion, over-indulgence in food or alcohol, and occasionally by congenital predisposition.

The chapter on nervous disease is more modern, and contains less inaccuracies, and will doubtless prove of value to students.

MODERN MATERIA MEDICA FOR PHARMACISTS, MEDICAL MEN AND STUDENTS. By H. HELBING, F.C.S. Third enlarged edition. New York: Lehn & Fink, 1892.

The publication of a third enlarged edition of this book within a year after its second appearance strongly indicates both the rapid progress of modern therapeutics and the value of the author's production. Upward of 200 remedies have been considered, most of which are synthetical and have been introduced within a decade.

The drugs are arranged in alphabetical order, and each monograph describes the preparations and the physical and chemical properties of the substance, and contains a succinct account of its medicinal uses. The value of the work is enhanced by the addition of a table stating the solubility and melting and boiling points of the new remedies. The author has accomplished his task unusually well, and the book will undoubtedly fill an important place in the reference library of both physician and pharmacist.

TO CONTRIBUTORS AND SUBSCRIBERS.

All Communications to this Magazine must be contributed to it exclusively.

Reprints will be furnished free to authors of articles published among the original communications, provided the order is distinctly stated upon the manuscript when sent to the Editorial Committee. Typewritten copy preferred.

Contributors desiring extra copies of their articles can obtain them, at reasonable rates, by applying to the General Manager immediately after the acceptance of the article by the Editorial Staff.

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UNIVERSITY
MEDICAL MAGAZINE

JULY, 1893.

INJURY OF THE HEAD; COMPOUND FRACTURE OF THE ARM; LACERATED AND INCISED WOUND OF THE WRIST AND THUMB.[1]

By John Ashhurst, Jr., M.D.,

Barton Professor of Surgery, and Professor of Clinical Surgery in the University of Pennsylvania; Surgeon to the Pennsylvania Hospital, etc.

Case I—*Injury of the Head.*—The first patient whom I am going to show you to-day is a man, 30 years of age, who, we think, has probably sustained a fracture of the base of the skull, in connection with a serious injury of the brain. He was brought in on the afternoon of the day before yesterday, with the history that he had fallen from a ladder a distance of some thirty feet. The man working with him did not see him fall, but heard the sound of a heavy body striking the ground, so that the supposition that he fell this distance is only presumptive. When admitted he was in a condition of shock, his temperature being only 97° F.; he was unconscious; and his right pupil was greatly dilated, his left slightly so. You cannot really derive much information from the state of the pupils in head injuries; it is interesting to note it, but the observations of writers are so confusing as to the lesions met with in connection with any particular state of the pupils that I have ceased to pay much attention to it. In profound shock, however, we are likely to have dilatation of the pupils. The patient was bleeding profusely from the right ear, and this, of course, suggested to Dr. Wilson, the house surgeon, that there had probably been a fracture at the base of the skull, though the simple fact that there is hemorrhage from the ear after an injury to the head, does not prove that there has been a fracture, since the blood may come from a wound of the meatus, or from a rupture of the tympanum or its membrane. In addition to this, there was a disloca-

[1] A clinical lecture delivered at the Pennsylvania Hospital, March 29, 1893.

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tion of the sternal end of the right clavicle, and a cut on the chin. There was no depression or other evidence of fracture of the vault of the skull.

The patient was put to bed and a sand bag put over the clavicle. Two hours afterward it was noticed that his temperature had risen to 99.4° F.; pulse, 100; respirations normal. During the night he was unable to swallow, and was profoundly comatose, but toward morning he became restless, and it was then noted that he could not move his right arm and leg, but did move the limbs of the left side, so that while the external injury appears to have been on the right side, the intracranial lesion is probably on the left. You know that in injuries of the head we have crossed paralysis; if the injury is on the right side the paralysis is on the left, and if the left side is injured the paralysis is on the right; here, however, the paralysis is on the same side as the external injury. The next morning the patient continued very restless, and now the right leg moved a little, and he was able to swallow. He has taken milk as nourishment, and has had cold applications to the head; and has been given calomel, gr. $\frac{1}{6}$, and Dover's powder, gr. ij, every two hours. He has not regained consciousness, and has made no attempt to speak; he occasionally utters a groan, but makes no attempt at articular language, so that he has aphasia in addition to the right-side paralysis. This is what we should expect, because aphasia is dependent on a lesion of the left side of the brain, so that when there is right-side paralysis there is aphasia, and when there is left-side paralysis there usually is not. The urine has been passed involuntarily, and the blood has stopped flowing from the ear. The patient's temperature rose to 101° yesterday, but has steadily fallen this morning, until it is somewhat subnormal.

With this history, what information can we get as to the nature of the injury? In the first place the profuse hemorrhage from the right ear shows that there has been a severe blow over that side at least, but whether there has been a fracture of the base of the skull, through the mastoid portion, allowing blood to escape from the brain, we cannot say. I rather think that there is no such communication here, since, when we have hemorrhage from the base of the brain and the bleeding stops, its place is usually taken by a discharge of serous fluid; even with a watery flow from the ear we cannot be sure that there is a fracture of the skull, as there are several conditions beside fracture which might cause it. Thus there are cases recorded in which there has been a communication with the mouth, and a discharge of saliva through the ear; or there may be a discharge of liquid from the semicircular canals—the liquor Cotunnii. When, however, the watery discharge is in large quantity, and when it succeeds hemorrhage, there is

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strong presumptive evidence that it is due to fracture of the base of the skull. The hemorrhage in this case was free, but has stopped, and no watery discharge has followed, so I infer that the blood came from the ear itself. The paralysis affecting the right side, and the persistent aphasia—for though the patient is so restless, tossing himself about, and moving his left limbs in every direction, he has not attempted to say a word—forces us to the conclusion that there is a grave lesion on the left side. In other words, we have a serious lesion by counter-stroke. Some writers have attempted to limit this term counter-stroke to a particular form of injury—thus, if a man is hit with a hammer on one side of the skull, and a fracture occurs on the opposite side, they would say that that was an example of counter-stroke—but as used by the older writers, and particularly in the memoirs of the old French Academy of Surgery, this term was employed in a general way for all injuries by indirect violence, in which the force was applied at one end or at one side of a bone or a system of bones, and in which the lesion was observed at the other end. Thus there might be a fracture of the sternum by counter-stroke from a fall on the back. It was a general term, meaning fracture or other injury from indirect violence. And we have this, no doubt, in the present case. We have a lesion of some kind of the brain, still persisting, involving the speech and arm centres, while that involving the leg centre may have been of a more trivial character, possibly concussion, or temporary congestion, either of which may cause arrest of function. When a person is stunned, all the voluntary functions are temporarily in abeyance, and the paralysis of the leg centre may have been thus caused; but the centre for speech and that of the arm must have been more seriously affected, as their loss of function is persistent, and has now continued for nearly forty-eight hours, with no attempt at restoration. What the particular nature of the lesion is, we cannot say with any degree of positiveness. From the fact that the patient is extremely restless, tossing about all the time, and with this sudden depression of temperature, I am disposed to think that there has been a fresh hemorrhage, tearing up the surrounding parts of the brain, since when we have hemorrhage into the brain, causing laceration of its substance, we are apt to have great restlessness. This is, however, only an inference. The number of observations is not sufficient to enable us to speak with positiveness on this point. If the patient dies, as I fear he will, I think that we shall find that this has been the case, and that the great restlessness is due to this cause.

What is the mechanism of injuries by counter-stroke? There have been two principal theories advanced, one called the vibratory and the other the bursting theory, the latter being really an old doc-

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trine revived. There is no antagonism, in my judgment, between these two theories, and I believe that both are founded on well-established physical laws, and may properly be applied to the explanation of these cases. There can be no doubt that when an injury is inflicted on one side of the skull it is transmitted by vibrations to the other side, as can be illustrated by the familiar experiment of drawing one of a number of balls away from the rest, and allowing it to fall, when the ball at the other end of the series, without motion of the intermediate ball, rebounds, showing the transmission of force by vibrations. But some features of counter-stroke are best explained by the bursting theory. It is founded on the fact that when a hollow metal sphere is depressed on one side it is drawn in correspondingly on the opposite side, and there is an elongation in certain diameters and shortening in others. So if you have force applied to one side of the skull you have a shortening of the diameter between that point and the point directly opposite, and a lengthening of the diameters at right angles to this. If the skull happens to be weakest on the opposite side, you may have a fracture there, beginning on the inner surface; for you know that when a bone is fractured the lesion always begins in the line of extension. You break a stick across your knee, and you find that it begins to break in the part away from the knee; and if force be applied to the outside of the skull you have the line of extension on the inner side, and the fracture may occur there, or it may occur on the inner surface of the opposite side, where the skull is drawn in, the line of extension in either case being on the inner surface of the skull. On the other hand, if the bone happens to be weakest at a circumferential point you may have a fracture there, the line of extension now being on the outer surface, because that diameter is lengthened. There are some very interesting cases which illustrate this mechanism of fracture, one being that of President Lincoln, who was killed by a gunshot wound of the brain, and in whose case after death it was found that the orbital plates had been fractured and displaced upward, a peculiar displacement which can hardly be accounted for except by this bursting theory. Of course, the skull is not a hollow metal sphere, and you cannot, therefore, predicate the seat of fracture with certainty, but at the same time the analogies are sufficient to make this the probable explanation of these cases.

When a fracture is received at the point to which the force is applied, you know that almost always the inner table is more broken than the outer, and the brain lesion is apt to be immediately below. The same explanation that has been given for fracture will apply, to a certain extent, to injuries of the viscera without injury of the skull. While it is perfectly true that the brain is not held closely in the skull,

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at the same time the approximation is sufficient for the force to be transmitted in the way that I have described by the parietes, causing a lesion of the opposite side of the brain. If there is injury to the brain from direct lesion, then you find the injured portion of the brain directly underneath the external wound; if caused by counter-stroke, you are apt to find the lesion on the opposite side, where the force has expended itself. That, I think, has been the case here. The blow fell on the right side of the head and was transmitted to the opposite side, there drawing in the bone, as it were, and causing laceration of the brain and hemorrhage on the left side; thus we have the right-side paralysis and the aphasia fully accounted for.

As to the prognosis of this case, it is very unfavorable. Yesterday I was disposed to think that the patient had a chance to get well; since, though still unconscious, he had improved somewhat and had regained the ability to swallow, and there was reason to hope that the brain would gradually recover itself, returning almost to its normal condition, if not wholly repaired. But to-day, while the restlessness is greatly increased, at the same time the temperature has gone down. If even though the restlessness had increased the temperature had risen, indicating the presence of cerebritis or meningitis, which we should expect to occur, I should think more favorably of the patient's state; but from the drop in the temperature I am inclined to think that there has been a renewal of the hemorrhage, causing fresh shock and increased laceration of the brain. If this continues for any great length of time, of course the lesion will become so grave that recovery cannot be hoped for.

As to treatment, there is but little to do. You cannot, with any advantage, employ the trephine. There is no absolute certainty that there is a fracture, and even if there were there would be no indication for an operation. All that can be done is to treat the patient by general methods, internally and externally, and make antiseptic applications to the ear, so that if there should be communication with the brain the risk of septic infection may be avoided. I do not think that there is any communication here, but at the same time it will be prudent to wash out the ear with antiseptic lotions and pack it with antiseptic cotton. Then the use of cold is of great value in injuries of the head, particularly in cases of this kind, where you think that there is a continuation of hemorrhage, or a tendency to it, since cold is a valuable remedy for the control of bleeding, as well as a means of preventing inflammation; so an ice cap is indicated. Then we give the patient opium—two grains of Dover's powder every two hours—and this has a good effect in injuries of the head, since one of the properties of opium is to retard cell change and osmosis, rendering it a valua-

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ble remedy in all inflammations. Calomel is used, and is of much service in these cases, and has been given here for its anticipatory antiplastic influence. Desault used tartar emetic in large doses in head injuries, with the same object. There is strong clinical evidence to show that mercury does have a controlling effect over serous inflammations, and I believe that by giving it in small doses before the occurrence of inflammation we may prevent it, or, at least, modify its course. If the patient is completely comatose we give calomel alone, but if there is much restlessness the opium should be combined with it. The bowels must be relieved by the use of enemata.

As to the luxation of the clavicle, it is not worth while to subject the patient to any annoyance by its treatment at present; we should not be able to keep the bone in place on account of his restlessness, and it would do more harm than good to attempt it.

[Contrary to expectation, this patient the next day was no worse, his temperature having again risen to the normal standard, and the day after was slightly better. The power of moving the right arm slowly returned, and he attempted to speak for the first time on the sixth day. The aphasia measurably disappeared; the patient, at first dazed and confused, for a time became more rational; but ultimately the symptoms were again aggravated, the patient became delirious and lost flesh, the temperature rose, and death ensued just two months from the date of the injury. No post-mortem examination could be obtained].

CASE II—*Compound Fracture of the Humerus.*—The next case is one of severe injury to a boy 12 years old, who came in on March 20 with a compound fracture of the right arm, attended with a considerable amount of contusion around the external wound. He was admitted in the evening, having been knocked down by one of the omnibuses on Broad Street. There was a good deal of swelling, and dark-colored blood ran out of the wound when the part was handled, showing that there was laceration of the subcutaneous veins. The arm was placed on an internal right-angled splint, with an ordinary antiseptic dressing.

I saw the boy the next day, and finding the arm painful and swollen thought it best to change the mode of dressing, laying the arm on a splint and applying irrigation, which I think is the most satisfactory method of treating these severe cases. We covered the arm with several thicknesses of corrosive sublimate gauze, and then allowed water to drip over it, the water being at a temperature of 80° F. In cold weather the temperature of the water should be considerably raised over that of the surrounding atmosphere, as it loses a good deal of heat in passing from the reservoir to the limb. In summer this is not necessary, and we generally use water without preliminary warming.

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This injury is going to be followed by a certain amount of sloughing; the arm at first was much swollen and discolored, but that condition has gradually passed away, so that with the exception of this localized slough the limb is doing very well.

Where you have a bad compound fracture, the most important thing to consider first is really the state of the soft parts rather than the condition of the bones. When the soft parts are safe from gangrene, then you may with advantage apply dressings with regard to the special form of fracture; but all that we think it desirable to do as yet in the present case is to put the arm in what would be a useful position, in case it should become stiff, that is at about a right angle, and to treat the soft parts by irrigation.

The irrigation is conveniently applied with the aid of these supports and this glass reservoir; or an ordinary pitcher may be placed at the proper level, and the drip made by a piece of lamp wick or a fold of bandage, one end of which is in the reservoir, while the other end at a lower level is adjusted over the wound. You may use a weak bichloride solution for irrigation, but we usually find it sufficient to apply sublimate gauze, dipped in the solution, over the limb, and then to have plain water in the reservoir. Mackintosh cloths and a bucket are so arranged as to let the superfluous water run off without wetting the bed.

In compound fractures, where there is not much injury of the soft parts, we use ordinary antiseptic dressings with splints. We have to remove any detached fragments of bone, and push back into place those which are partly adherent, always letting the fragments remain until it is seen that they will not unite, rather than removing them prematurely. You can derive a good deal of information from the history of the case as to which plan of treatment will be most desirable. If the wound is caused by the sharp end of the bone coming through the skin—if, in other words, the fracture occurs first and the wound afterward—you will not have much contusion, and there will be very little risk of contamination by septic material; but on the other hand if you have the wound caused by the same force that produced the fracture, as when a limb is run over by a vehicle, you will not only have more severe contusion, but danger of septic infection. In the former case you may treat the fracture as a simple one, with the addition of ordinary antiseptic dressings, but in the latter, where there is strong probability of sloughing or of severe inflammation, it will often be more prudent to treat the wound by irrigation.

The advantages of irrigation are that it enables the surgeon to examine the wound without redressing it or giving the patient any

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inconvenience, makes no compression over the wound, and avoids all risks of injurious tension. The limb is laid lightly on a splint, protected with mackintosh, and is fixed by two or three strips of adhesive plaster without any pressure. When the slough has come away here, in the course of four or five days more, we shall have a granulating wound, and then may soon discontinue the irrigation, and put up the limb with ordinary dressings. In cases of simple fracture of the humerus, just above the joint, I prefer at first an anterior splint, which I think is better in the early stages of the injury than the internal splint; but the anterior spint cannot be so conveniently used in conjunction with irrigation.

This boy has been very comfortable since his injury. His temperature went up to 101.8° F. on the second day, but since irrigation was begun its general course has been downward, until it now ranges at about the normal point in the morning and below 100° in the evening, showing that there is not much fever. His bowels are kept in a soluble condition. He is perfectly quiet during the day, but at night does not sleep well, though probably as well as could be expected of a boy suffering from such a severe injury. His tongue is clean, and his digestive functions well performed. [Several abscesses formed during the following weeks, opening into the elbow joint and requiring free drainage; but the patient ultimately made a good recovery with a useful arm].

CASE III—*Lacerated and Incised Wound of Wrist and Thumb.*—Here is another case of severe wound. The patient is a man aged 49 years, who has an incised and lacerated wound of the right wrist and thumb, caused by thrusting his hand through a pane of glass. He was brought in on the afternoon of the 27th, somewhat under the influence of liquor, and with a deep cut extending across the forearm above the wrist. He was etherized, and the wound explored, when Dr. Wilson found that several tendons had been cut across, and in order to bring down their retracted upper ends for the introduction of sutures it was necessary to enlarge the incision in an upward direction. The tendons of the palmaris longus, flexor carpi radialis, and flexor carpi ulnaris were cut; no large arteries were divided, but the outer coat of the ulnar artery was slightly grazed, so that there is a possible risk of secondary hemorrhage, or of the formation of an aneurism, and the patient should, therefore, be carefully watched. The cut tendons have been sutured with catgut, and the hand, as you see, is placed on a splint in the flexed position so as to relax all the tissues on the anterior surface. The patient was restless the night after his admission, and there was some fear of delirium tremens supervening, so that bromide of potassium, 20 grains, was given every two hours, and a moderate quantity of

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morphia. Yesterday the patient complained of numbness in his hand, with at times pain. There is no evidence that any large nerve has been divided, and the numbness is probably due to the implication of small branches, or to the cramped position of the limb.

It has been within a comparatively few years only that the practice of stitching divided tendons and nerves has been adopted. There was great fear formerly in regard to suturing nerves, that so doing might cause tetanus; but now, since it is generally recognized that tetanus is a blood disease, due to a special micro-organism, and merely having its manifestation through the nervous system, the use of stitches is no longer feared. Sometimes a portion of a nerve or tendon is destroyed, so that the ends cannot be approximated; then you can do what is called nerve or tendon splicing, splitting off without detaching one-half of either end for a sufficient distance, turning the split portions so as to increase the length of the nerve or tendon at the expense of its width, and then stitching the two turned down portions together. Sometimes you cannot find the upper end of the cut nerve or tendon; then you may stitch the lower end to another nerve or tendon, and make one do the work of two.

As to the injury of the ulnar artery, I think the proper treatment is that which we have adopted—careful dressing and watching, without applying ligatures unless the vessel should appear likely to give way. Our practice in this respect would be decided by the particular circumstances of the case. If the patient were going out of the hospital, it would be safer to tie the vessel both above and below the point of injury.

The patient has done very well. There is a certain amount of swelling, and some fever, but we expect that. If the fever should last more than eight days, we should fear septic poisoning, since what is called secondary fever, either coming on after eight days or persisting beyond the same period, is closely allied to septicemia. Ordinary traumatic fever, not septic in character, which is supposed to be due to the presence of a "fibrin-ferment," begins about the second day and lasts until the fifth or sixth; if lasting beyond the eighth day it becomes secondary fever, and always gives cause for anxiety. This man's temperature is just below 100° F., and will probably be higher to-night than last night, as the height of the traumatic fever is not usually reached until the third day, after which there is a gradual subsidence unless some complication arises.

[This patient's convalescence was uninterrupted, and he left the hospital in a few weeks with a useful hand].

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NOTE ON PERNICIOUS ANEMIA AND CHLOROSIS IN THE NEGRO.

By J. H. Musser, M.D.,

Assistant Professor of Clinical Medicine, University of Pennsylvania.

As far as the writer's knowledge goes, cases of the above diseases in the black race have not thus far been reported. On account of their rarity, therefore, the following notes are presented:

Case of Pernicious Anemia in the Negro.—E. D., aged 50, a widow, cook by occupation, black, was admitted to the medical wards of the Presbyterian Hospital, October 10, 1891. Her habits, as far as could be ascertained, had been good, and no cause could be found for her anemia. Her mother died of dropsy, and her father of an alleged slow poison, said to be due to work in chemicals. One sister died of cancer, another of phthisis, and a brother of acute intestinal disorder.

The patient has had the usual children's diseases and varioloid. At the age of 18 she had an attack of inflammatory rheumatism, and since then she has had three attacks at long intervals. She says she had malaria very severely during the past nine years. She had nine children in twelve years, and the menopause took place fifteen years ago.

The patient has been feeling badly for a year. Her symptoms occurred at irregular intervals in exacerbations; shortness of breath, attacks of nausea and vomiting, neuralgic pains in the legs, and headache, were the most prominent. Her feet would swell, but the swelling would disappear on treatment.

On examination the patient was much older in appearance than the age given. There is not much loss of flesh. Her teeth were poor; the mucous membranes of the tongue and mouth particularly pale; the sclerotics were very white, and conjunctivæ extremely pallid. She suffers from extreme weakness and shortness of breath, on account of which she is in bed most of the time. The anemia and apparent causelessness of her disability led to careful examination of the abdominal organs, with the following results: The liver was of the normal size; the abdomen slightly distended; the functions of the gastro-intestinal tract appeared to be good. There was no evidence of any organic disease. The aorta pulsated very much, and was the cause of considerable distress. Indeed, the pulsation, and bruit with pain, caused one to suspect the presence of an aneurism. Examination of the lungs did not reveal anything of note. The apex of the heart was seen in the fifth interspace; the impulse was diffused and strong. The upper

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border of cardiac dulness began at third interspace, and the left border, in midclavicular line, fifth interspace. At the apex a loud systolic murmur was heard, transmitted into the axilla, and a faint murmur was heard at the second costal cartilage on the right, conducted into the carotids. A loud murmur was heard in the vessels of the neck. Carotid pulsation was marked; the jugular veins were not full. Patient remained in the hospital, growing weaker and weaker. On account of extra pressure of work, from a prevailing epidemic, the blood was not studied as it should have been. The count of the r. b. c. showed reduction of the same to 1,600,000, and several examinations for hemoglobin showed an average of 16 per cent. Death took place gradually from asthenia, during the term of service of my friend, Dr. Woods, to whom I am indebted for the privilege of reporting the case.

The autopsy was made by the pathologist, Dr. Griffith. There was entire absence of organic disease in all the organs examined; the tissues and fat were like those of pernicious anemia. The heart was markedly fatty, and showed the tabby-cat striation very distinctly. The marrow of the bones was very red. The liver and kidneys contained an excess of iron. Further report of the pathological features of the case will be made by Dr. Griffith.[1]

Case of Chlorosis in a Mulatto.—The patient was a young girl, aged 22, who had suffered for six months with all the severe symptoms of chlorosis, of which gastralgia, persistent throbbing headache, with palpitation and pulsation of the vessels, were the most marked. The symptoms were so striking that they led to an examination of the blood. Such examination showed the presence in a high degree of the changes found in chlorosis. The use of Blaud's pills, as commonly advised in this affection, proved most satisfactory, and in a short time all the symptoms, for which the patient had been treated a long while, disappeared.

RED CHROMIDROSIS (?)[2]

By M. B. Hartzell, M.D.,

Instructor in Dermatology, University of Pennsylvania.

The disease of which the three following cases are examples is not a true chromidrosis, the sudoriparous glands probably being unaffected, or, at most, playing only a secondary part in its production;

[1] See Trans. Col. of Phys., 1891.

[2] Read before the meeting of the College of Physicians of Philadelphia, May 1, 1893.

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but as this term is employed to designate the malady in most text-books upon dermatology, it is here retained to avoid possible confusion.

CASE I.—Mrs. S., 35 years old, blonde, with red hair, nervous temperament; suffers from dysmenorrhea; sterile, although married for fifteen years; sought advice for an affection of the right axilla, which produced deep and indelible orange-staining of the underwear. There were no subjective symptoms, but the quantity of perspiration in both axillæ was considerable, though not excessive. Upon examination the hair in the right axilla, which was quite abundant, was seen to be dyed a peculiar color and to present a beaded appearance, due to the presence of numerous small brownish nodules encircling the hair shaft. The most careful examination failed to show any trace of color in the sweat as it was excreted. Some of the hairs were cut off and examined microscopically, with results presently to be described.

CASE II.—Mrs. M. R., 29 years of age, brunette, while under treatment for another affection not connected with the skin, called attention to a peculiar staining of the underwear in the axillæ. The staining, while not so marked as in the preceding case, was of the same orange hue and occurred in both axillæ. Upon examination, small nodules similar to those already described were found upon the hair, but no coloration of the sweat could be detected, nor was this excretion unusually abundant. There were no subjective symptoms of any kind, treatment being sought only because of the staining of the clothing. It may be of interest to mention the fact that this patient, like the preceding one, was also sterile, although no symptoms of uterine disease were present.

The third case occurred in the person of a male, the disease being limited to the perineal region.

CASE III.—F. F., 28 years old, single, of splendid physique and in excellent health, noticed for several months prior to coming under the writer's observation that the drawers were slightly stained where they came in contact with the perineum. Frequent and careful bathing, with frequent changing of the underwear, failed to prevent the discoloration, and advice was sought as to its causation.

At the first examination nothing abnormal was detected, but the patient was directed to cut off some of the hair in order that it might be examined more thoroughly. Upon examining these hairs with an ordinary pocket-lens, minute brownish nodules were found upon the shaft of the hairs, but the greater number were seated upon the end of the hair-shaft. Upon examination with a magnification of sixty diameters many of the hairs presented a brush-like extremity, in the fibres of which were entangled small nodules. It was evident that the growth of the fungus had caused the hair to break, the distal portion

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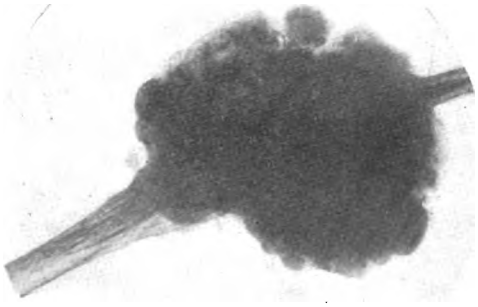
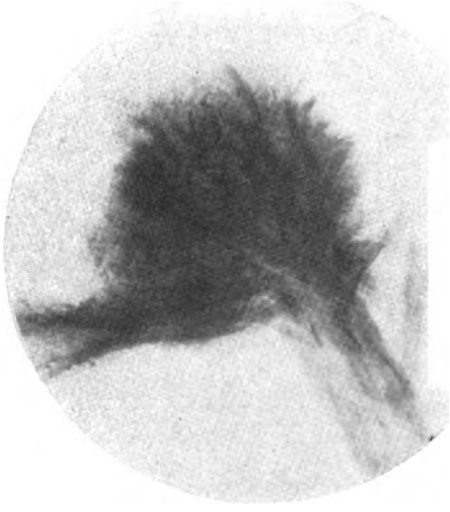
FIG. 1.



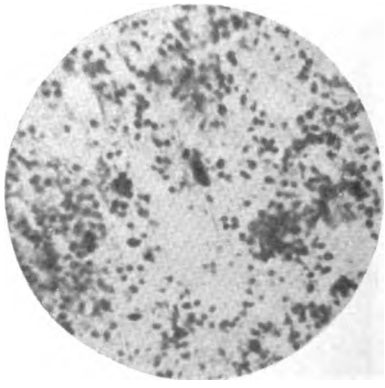
AXILLARY HAIR WITH FUNGUS GROWING UPON IT. × Circa., 75 dia.

FIG. 2.



PERINEAL HAIR WITH BRUSH-LIKE EXTREMITY IN WHICH THE FUNGUS IS LODGED. × 200.

FIG. 3.



MICROCOCCI FROM NODULE UPON AN AXILLARY HAIR. × 1000.

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falling off, leaving the nodule imbedded in the brush-like end. Many of the hairs recalled strongly the features presented by trichorrhexis nodosa.

In none of these cases was the sweat colored at the time of its excretion, but it seemed to act as a solvent for the coloring matter present in the small excrescences upon the axillary and perineal hairs.

A microscopical examination of the nodules with a magnification of two hundred diameters, shows that the fungus began to grow upon the surface of the hair, but with the growth of the parasite the hair itself was penetrated, being split up into numerous small fibres, and, in the case of the perineal hairs, fracture of the hair shaft occurred with the production of brush-like ends in which the small brown mass was lodged (Fig. 2). In the larger nodules a magnification of some eight hundred diameters showed numerous parallel striæ running at right angles to the shaft of the hair, while in the fine colorless hairs upon which the fungus was just beginning to grow a fine dotted appearance was seen.

Upon subjecting the hair to the action of liquor potassæ and afterward crushing the nodules thoroughly upon a slide, staining with safranin and mounting in glycerin, a high power showed that the mass was composed of numerous micrococci which grew between the fibres of the hair and around the shaft, and were held together by a yellowish or orange-colored amorphous substance. (Fig. 3.) A few attempts at culture upon sterilized potato at the ordinary house temperature were made, but without success.

Dr. Kneass, who kindly undertook to make some culture experiments for me in the pathological laboratory of the University of Pennsylvania, succeeded in cultivating the fungus upon sugar at a temperature of 37° C. The fungus began to grow within a few hours after implantation, but instead of the brown or orange color, as seen upon the hair, it was sulphur-yellow. Examination of pure cultures showed the cocci frequetly arranged in pairs and tetrads, resembling in this respect the micrococcus tetragonus. As the same fungus was obtained from the hair of different patients, it is fair to presume that this micrococcus is the one concerned in the production of the nodules upon the hairs. Upon coagulated albumin the fungus grew much more slowly.

Although this malady has been known for some time, its true nature has only been determined within a comparatively recent period. Hoffman and Pick, in Germany, and Babes, in France, first pointed out that the red color was due to a fungus growing upon the hair, which the last-named author succeeded in cultivating upon coagulated albumin. The pigment, according to Babes, who examined it spectroscopically, resembles that produced by the *micrococcus prodigiosus*,

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the fungus concerned in the production of the so-called "bleeding host." The identity of the two organisms, however, has not yet been proven. By scraping the epidermis in the axillary and perineal regions, organisms similar to those upon the hair have been found, but not all of these were pigmented—many of them were colorless. Balzer and Barthelemy, who have also studied the matter carefully, are of the opinion that it is much more frequent than is commonly supposed, since they were able to collect a considerable number of cases by examining individuals at random. The pigment is not always red, but may be of a yellow hue, and these authors found instances in which the parasite was present upon the axillary hairs without any pigment accompanying it. In most cases the sweat is usually abundant, but it is not yet known whether qualitative changes in this excretion are necessary for the production of the disease.

It would seem that blondes are more frequently affected than brunettes, and that weakness and debility are predisposing conditions, although the robust are not exempt.

As has already been mentioned, the sweat is colorless upon its excretion, and for this reason the name chromidrosis should be abandoned; the malady is, in fact, one of the hairs, and not of the sweat-gland.

As the disease is not attended with any annoying symptoms, treatment is rarely sought unless the staining of the underwear is considerable. In the writer's cases alcoholic solutions of bichloride of mercury, two to three grains to the ounce, were employed as lotions with some degree of success; but much more speedy results would probably be obtained by first shaving the affected regions, as in this manner a large part of the fungus would be removed at once.

DIPHTHERITIC NEPHRITIS.

By M. Howard Fussell, M.D.,

Instructor in Clinical Medicine, University of Pennsylvania.

A study of the various text-books will give the idea that nephritis, as a complication of diphtheria, is scarcely to be taken into consideration; that while albuminuria is common it is usually not due to a nephritis, and that when nephritis does occur it is of rather mild type.

Jacobi, in his article in "Pepper's Encyclopedia," makes no remarks on the subject whatever. Taylor, in his text-book, is equally uncommunicative. Cormack, in "Quain's Dictionary of Medicine," says: "A renal cause may exist (for albuminuria) in pre-existing disease of the

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kidneys; or secondarily, in their simple congestion from the strain of over-work and their functional feebleness. . . . Albuminuria is not a sign of danger."

Flint says: "Albuminuria is common. There may be evidences of acute Bright's disease." He does not mention it in the paragraph upon prognosis.

Lyman believes that albuminuria occurs in almost half the cases, and that the kidneys in fatal cases are almost invariably affected, and that "an acute diffuse nephritis is universal. This does not invade the organs symmetrically or totally, hence the rarity of uremia or dropsy."

Osler says: "Renal complications are common. It is only when the albumin is in considerable quantity and associated with epithelial or blood casts that the condition is alarming."

Smith, in his book on "Diseases of Children," says: "Albumin, when abundant, is usually accompanied by casts, and if the albumin and casts were abundant, the cases usually proved fatal, though, perhaps, not for three or four weeks."

The authors quoted above, with the exception of Osler and Smith, look upon albumin and even casts in the urine as a comparatively trifling symptom. My experience agrees with that of Osler and Smith, and it is with the darkest forebodings that I see both albumin and casts appearing in the urine. During the past nine years I have met with four cases of nephritis as a complication of diphtheria, three of which were fatal. During the period diphtheria has not been epidemic, and the cases of that disease are few in number. The regularity of the symptoms in these cases, however, and the fatality in three, forcibly attracted my attention to the fact that sometimes, at least, the nephritis of diphtheria is a grave complication, and much more unmanageable than the inflammation of kidneys occurring in scarlet fever. The cases are briefly as follows:

CASE I.—Thos. M., 6 years, was seized June 16, 1885, with fever, sore throat and lassitude. On examination, the tonsils and part of the posterior wall of the pharynx were covered with a thick membrane. On the 19th the exudation began to disappear from the throat, and the glands at the angle of the jaw became softer. On June 21 the exudation had all disappeared from the tonsils and pharynx, but the child became hoarse. Stenosis of the pharynx did not occur. A trace of albumin was observed in the urine. June 23 the albumin amounted to one-third in bulk when the urine was boiled. Specific gravity 1018. Abundance of epithelial and blood casts. The urine was much diminished in amount. From this date until the 29th the urine progressively became smaller in amount, and the albumin and casts increased. The last urine was passed on the morning of the 29th. It distinctly lacked the smoky appearance of the urine of scarlatinal nephritis, was

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of amber color and contained much albumin. After the 20th until the morning of July 1, or about a period of seventy-two hours, there was total suppression of urine. The patient became extremely pale and restless, the pulse small and feeble. He died of exhaustion. No edema or distinctly uremic symptoms developed.

CASE II.—Ross W. seized with high fever and convulsions, April 2, 1889. Both tonsils and the pharynx were covered with a thick diphtheritic membrane. April 4 the exudation was still present, but much less. On the 10th the throat was entirely clear; the patient passed about two quarts of very clear urine of low specific gravity in twenty-four hours. It contained a trace of albumin. On the 4th the urine was suppressed, only about one ounce being passed since yesterday afternoon. It is highly albuminous, and contains many epithelial and hyaline casts. He was given caffeine with the effect of doubling the flow of urine, but it was still highly albuminous and contained numbers of casts. The patient became pallid, the pulse failed, and he died of exhaustion on April 15. There was never dropsy.

CASE III.—John M., a case of severe pharyngeal diphtheria. The exudation almost entirely disappeared by the end of the sixth day. About the same time, and after all exudations had gone, the patient began to pass a little urine, which was highly albuminous and contained casts. On the third day it was totally suppressed. The patient became pallid, weak, almost pulseless and died of exhaustion at the end of the second week. There was no edema.

CASE IV.—Maggie W. began to be ill May 18, 1891, with fever and vomiting. There is exudation, a true membrane confined to the tonsils. Until the 21st the exudation was limited to the tonsils and then appeared on the uvula. On the 21st the urine, which was of normal color and rather scant, contained albumin and casts. The urine diminished in amount, but was never suppressed. Gradually the urine increased in amount, the albumin and casts disappeared and the patient recovered.

From the above cases, the prominent symptoms of nephritis as a complication of diphtheria would be diminution of the amount of urine, with frequent total suppression, large amount of albumin and tube casts in urine. The nephritis, as in the first three cases, may develop just as the patient appears to begin to recover and as the membrane disappears. There is seldom anasarca and not usually anemic symptoms. The patient dies of asthenia. While unquestionably this state of affairs is not common, it does exist as shown by the above cases and by the large experience of Smith and Osler. This brief paper is written with the intention of calling attention to the fact of the existence of fatal nephritis more pointedly than is done by the majority of text-books.

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A REPORT OF EIGHTEEN CASES OF "TRAUMATIC NEUROSES," WITH SPECIAL REFERENCE TO THE NON-EXISTENCE OF LITIGATION.

By Charles S. Potts, M.D.,

Instructor in Nervous Diseases in the University of Pennsylvania; Physician to the Dispensary for Nervous Diseases in the University Hospital.

No subject within the domain of medical jurisprudence is it of more importance for both lawyer and physician to have an accurate knowledge of than of those conditions of the nervous system known by the various names of spinal concussion, railway spine, railway brain, traumatic neurasthenia, etc., but now more generally termed the traumatic neuroses. A traumatic neurosis has been well defined to be "a morbid condition following shock, which presents the symptoms of neurasthenia or hysteria, or both."[1] To which might properly be added the words that these symptoms may sometimes be followed by definite organic disease. It is now generally accepted by neurologists that the majority of these cases are *bona fide*, and it would seem, from the great amount of literature which has accumulated in late years upon this subject, the greatest neurologists of all countries having given the subject their attention, that all physicians would now recognize their existence, and have some acquaintance with their symptoms and the methods of eliciting the same. This does not seem to be the case. The writer is frequently asked the questions, "Do these cases ever exist when no claim for damages is brought?" and "Do not these cases immediately recover after damages are awarded?" While there is no doubt that damages have been awarded to those not entitled to them, it is equally true that as many, if not more, have been unjustly deprived of them by the ignorance existing upon this subject, both of the lawyers and physicians who may come in contact with such cases. As an example of the lack of knowledge existing among practitioners, the second case of the two reported in which damages were awarded, was examined on behalf of the railroad company by a physician of considerable reputation, whose examination consisted in auscultating the chest. He was then prepared to go into court and swear that the patient was a malingerer.

In this paper the main object of the writer is to answer the two questions mentioned above, with especial reference to the first one. Cases recovering damages without recovering health are now frequently reported, but he thinks that his collection of those not involved in

[1] Osler, Practice of Medicine, p. 981.

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litigation of interest, both in point of numbers and in the etiology of many of them. All of them were observed since 1888 in the Clinic for Nervous Diseases at the University Hospital, and most of them were seen also by Drs. H. C. Wood and F. X. Dercum, two of them having been before reported by Dr. Dercum, and are here included to complete the series.

I.—Cases in Which there Was No Litigation.

Case I.—Reported by Dr. F. X. Dercum,[1] who has given a more complete account of the case. M. C. B., aged 47 years, at the time of observation was an oil distributer on the Pennsylvania Railroad. He had always enjoyed good health until 1877, when, while employed as a brakeman and engaged in coupling cars, he was badly squeezed between the tender of the engine and a car. He was taken to the hospital, where he remained five weeks, being able to walk at the end of four. He was exceedingly nervous, and upon returning to his old position he found that the sight of a passing train made him giddy. He had cold feet, backache, headache and insomnia. These conditions continued until 1880, when he was struck and knocked senseless by a moving car, sustaining also a scalp wound. He was able to return to work in a few days, with his nervous symptoms increased in severity. In 1881, while coupling cars, he had three fingers mashed, two of them requiring amputation. After this the nervous symptoms were greatly increased in severity, the backache being so bad as to often interfere with his work, which was now that of oil distributer. Six months after this he awoke screaming loudly. He was conscious at the time, but seemed unable to control himself. In 1887, his general condition in the meantime being about the same, he had another screaming fit. These spells have continued at intervals more or less frequent since (1888). In addition he has a painful back, very tender on pressure, and clavus hystericus at times.

Case II.—J. K., aged 63, a stereotyper by trade, several months before coming under observation fell down a flight of steps while carrying a heavy weight, dislocating his shoulder joint. Previous to the time of this accident he was perfectly well and able to work, although slightly nervous; since, to work has been impossible. He complains of startings and twitchings after going to bed at night, insomnia, giddiness while walking, loss of flesh. The only objective symptoms present were fine tremors of both hands. There was no dyspepsia or loss of appetite, or history of alcoholism or syphilis. This patient was under a tonic treatment for some time with some improvement.

Case III.—J. N., aged 25, followed the occupation of a coal

[1] Dercum, Remarks on Spinal Injuries, Therapeutic Gazette, May 15, 1889.

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miner. Ten years previous to coming to the hospital he had received a severe blow upon the hip. Ever since he has had pain in this region, which extends down the leg. At times he suffers from pains throughout the entire body. He sleeps poorly, and thinks that his eyesight has failed. He complains of flashes of heat and cold, and giddiness when he stoops. Examination revealed no tenderness anywhere; knee joints normal and no changes in the eye grounds. The symptoms did not improve under various plans of treatment.

CASE IV.—J. G., aged 38, a laborer by occupation, always enjoyed good health until three years ago, when he sustained a fall, striking the head and left shoulder. He was taken to a hospital, where the diagnosis of contusion of the head and neck was made. Shortly after this he began to be troubled with "twitchings and nervous feelings in the left side from the top of his head to the soles of his feet." He also complained of being easily excited and worried, poor sleep, palpitation of the heart, poor appetite and loss of flesh. Fine tremors were present in the left hand; none in the right. There were no dyspeptic symptoms, and the patient's habits had been good. He improved somewhat under treatment, and was lost sight of for a year, when he returned, complaining of the old symptoms.

CASE V.—This patient was an electrician, aged 25 years, who had enjoyed good health previous to receiving a shock from an alternating current of 1000 volts. Since that time he has been in poor health, suffering from spells in which he feels "as if he were going up in the air." He has continual supraorbital headache of left side, the pain sometimes running down the side of the face, and severe backache. No loss of consciousness accompanies the above-mentioned spells. No improvement was made under treatment.

CASE VI.—Is that of a man, 29 years of age, who, eighteen months before coming to the clinic, had attempted suicide by shooting, causing a flesh wound of the scalp in the occipital region. After recovering from the wound he noticed a numbness and weakness in both legs. He also thinks that his eyesight has failed, and he feels very nervous and irritable. The knee jerks were slightly increased. The patient did not return for further examination.

CASE VII.—J. G., aged 48 years, an Irishman by birth and a moulder by trade, fell down stairs fifteen weeks before coming to the dispensary, striking upon the back of the neck. About one week after he began to feel nervous and fidgety. These symptoms increased, and at the time of his visit he was unable to sleep at night, and could not work; his arms felt weak; the grip, when tested, being decidedly weaker than it should be, and fine tremors of the hands were present. The tongue was also tremulous, and some tenderness on pressure was

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manifested in the cervical region. No loss of sensation was present. The patient did not return.

CASE VIII.—E. W., a native of Pennsylvania, 10 years of age, and a schoolboy, fell from a bridge two years before coming under treatment. He struck upon his back, and was confined to bed for two weeks. At this time he had a great deal of pain in the back and head, which has persisted ever since. Spinal tenderness noted when pressure was made or the body bent in any direction. The knee jerks were absent, unless reinforced. No sensory changes present. His mother stated that he was excessively irritable and nervous, and had grown very little since the accident. The patient came of a nervous family, but he was in good health previous to the injury. There has not been much improvement in the symptoms during the past two years.

CASE IX.—This case has been reported in extenso by Dr. F. X. Dercum.[1] The main points of the history are briefly as follows, viz.: A carpenter and builder, 42 years of age, while superintending one of his own contracts was struck on the back by a rafter and knocked down. He was able to work some during the succeeding four days, on the fourth day being seized with a severe spell of vomiting, during which he vomited considerable blood. Headache, dizziness, soreness along the spinal column, inability to collect his thoughts, restlessness and delirium at night were present until time of examination. Six months after there was found pain in the back and spasm of the erector spinal group when passive motion of the body was made. Excessive tenderness, with nausea and flushing of the face was noted when pressure was made. Knee jerks increased, ankle clonus and paradoxical contractions of the anterior tibials were present.

CASE X.—J. W., a native of Pennsylvania, aged 48 years, and a carder by trade, was operated on for hemorrhoids six months previous to his applying for treatment. With the exception of the hemorrhoids he had always enjoyed good health, but, shortly after recovering from the operation, he began to feel "nervous and weak," and was unable to work. In addition, he complained of sudden jerkings of the arms and legs, especially at night, insomnia, frontal headache and failure of eyesight. Examination showed increased knee jerks, apparent ankle clonus, paradoxical contractions in anterior tibial muscles, sensation and gait good; tongue tremulous. No spinal tenderness or gross lesions of the eye grounds. His condition was improved by the use of tonics.

CASE XI.—A Scotchwoman, 26 years of age, and married, was in fair health previous to having an operation, the nature of which was

[1] Dercum, The Back in Railway Spine. (Recorded as Case V). American Journal of Medical Sciences, September, 1891.

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unknown, performed upon the uterus four years ago. "Since this time has been very nervous and irritable, has jumping sensations; anything happening unexpected goes through her like an electric shock." Occasionally she has spells in which she falls to the ground, becomes rigid, consciousness not entirely lost, but is drowsy afterward.

CASE XII.—J. B., a farmer, aged 37 years, gave a history of having been very nervous for the past fifteen years. This trouble he dates from a fall, in which he struck the back of his head. Complained of being easily frightened and depressed; insomnia. Lips and hands were tremulous; he drinks moderately.

CASE XIII.—W. R., aged 43, who at present follows the occupation of usher in a railroad station, was injured three years ago, at that time being a conductor, by being squeezed between two cars, causing fractures of the clavicle, thigh and four ribs. He was unconscious for several hours after reaching the hospital, and remained there nine weeks, but was confined to the house at home for nine more. While in the hospital he was unable to sleep, and suffered considerably from pain in the back and legs. He went back to work as an usher at the end of a year, during which time he had suffered from weakness, lack of ambition, tinnitus aurium, and inability to use the eyes for any length of time without greatly tiring them, pain in the back and "weak spells." Examination revealed tenderness between the scapulæ and over the sacrum, pain in the left side when the body was bent to the right, and over the quadratus lumbar muscle two inches to the left of the spine when the body was jarred. No marked spinal rigidity. The grip was much weakened, knee jerks absent, and venous congestion of the hands soon appeared if they were allowed to hang down. He complained, in addition, of an irritable bladder and a feeling "as if a tight band were around his head."

CASE XIV.—A. R., aged 28, a railroad engineer, was perfectly well until three weeks previous to coming to the hospital. At that time while attempting to save a man from being run over he had a narrow escape himself. Since this he has been very nervous and excitable. He complains of restlessness at night, frequently walking in his sleep, palpitation of the heart, headache, and of being confused mentally. There were also dyspeptic symptoms, such as flatulence, etc., which he says did not exist before.

CASE XV.—A laborer, aged 50 years, and a native of Ireland, three months before coming to the clinic was struck on the head by a piece of timber in the left parietal region. He was unconscious for a few moments, but went to work afterward, but says that he felt dizzy. He worked for ten days after the accident, when he was obliged to stop on account of progressive weakness of both legs; the *left one*, how-

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ever, is much the worse, and he has a great deal of pain in it. Knee jerks increased. The patient was not especially nervous, and did not improve after a month's treatment.

CASE XVI.—J. H., aged 35, native of Ireland, and by occupation a laborer, was injured, six weeks before coming under observation, by falling from the third story of a building to the ground; he struck upon the back in the dorsal region. Ever since he has had considerable pain in this region and across the shoulders, tenderness in the lower cervical region, and pain in the same region when the body is jarred or bent. He feels nervous, and does not sleep so well as before the accident. The patient did not return.

CASE XVII.—W. B., aged 27 years, born in Pennsylvania, and a clerk by occupation, nine months ago was struck on the left hip by a railroad car after he had jumped from a train. This caused great difficulty in walking, owing to the pain, for several days after. Ever since the accident he has been very nervous, being easily startled or excited, and is troubled greatly with palpitation of the heart. He gets tired very soon on slight exertion, and for the past month has had constant vertical headache. Tongue and hands tremulous. Pulse, 120.

CASE XVIII.—Miss E. C., aged 40, had, with the exception of occasional malarial attacks, always enjoyed good health until three years ago, when she sustained the severe mental shock of finding her mother lying dead in the bed alongside of her. Immediately after this she noticed that her legs were becoming weak, and that her eyesight was failing, the right eye becoming blind in the course of a few days; the blindness persisted for five weeks, when she as suddenly recovered her sight, which has continued good ever since. In the course of a few weeks she could not walk at all, and in addition was nervous, excitable, slept poorly, had muscular twitchings, and lost flesh. Under treatment by massage she gradually recovered power, the other symptoms continuing. When examined her gait at first would be good, but after walking a short distance her legs would give away from under her. Knee jerks increased, no clonus; no girdle sensation or pain, and sensation good. At times she is troubled with a frequent desire to urinate. This patient has improved somewhat under treatment, consisting of electricity, massage and tonics.

II.—CASES IN WHICH DAMAGES WERE AWARDED, BUT NOT FOLLOWED BY RECOVERY.

CASE I.—S. M., aged 40 years, born in Pennsylvania, and a melter in the U. S. Mint, presented himself at the dispensary on July 18, 1890, and gave the following history: Three weeks previous was on a railroad train, the rear of which was run into by another. At the time of the

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collision he was on the platform of the car, and was thrown with some force backward, his back (sacral region) striking upon the iron railing of the platform. At the time he felt tingling sensations in the legs, was nauseated, and the bystanders remarked his extreme pallor. He was able to walk away, and on examining his back found severe bruises where he had struck against the railing. From this time on he has experienced great difficulty in walking, at first principally from pain, which kept him in bed for several days, and complains of nervousness and insomnia. When examined the following were noted, viz.: Stands with the body held rigid and bent forward from the hips; the erect position causes great pain; walks by the aid of two canes, with the body held in the same position, and has a tendency to drag both feet; spine excessively tender along its entire length; spasm of the erector spinæ muscles and pain caused by passive motion of the body in any direction or jarring; knee jerks increased; plantar reflex absent; analgesia in both legs and to slight extent in both arms; no anesthesia (tests were made both with Faradic brush and anesthesiometer); dynamometer registered the grip of the right hand as 90, the left 190. Examination of eyes showed no abnormalities excepting marked contraction of the form field in the right eye. Complains of headache, frequent urination with trouble in holding the urine, loss of sexual power, failure of eyesight. His wife says that he is excessively irritable and low-spirited, worrying a great deal about the support of his family. Urine was normal, and personal habits were good. The after history of this patient presents some interesting features. Examinations frequently made during a period of several months elicited no marked changes in the objective symptoms detailed above. The fact that he was given a position in the Mint, as doorkeeper, caused some amelioration in the mental symptoms. In addition, other symptoms were developed from time to time. For instance, under date of August 23, 1890, it is noted that he complains of the head for the past few days being now and then violently twisted to the left (spasm of right sterno-mastoid). On September 5 an ulcer of the left cornea was discovered. Ulcers followed one another, first on one cornea then the other, at times on both, for nearly a year, the last ones appearing August 27, 1891, being six months after receiving his compensation from the railroad company. On November 18, 1890, he went to his home in the country to vote. While there was subjected to considerable excitement and worry, which resulted in a spell of paralysis of both legs lasting eight days. The patient was last seen in December, 1892. At that time, while much improved, he was still nervous and irritable, tired easily, and spine was tender. Previous to the accident he had been a remarkably robust man.

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The appearance and persistence of the corneal ulcers is of interest. Dr. Wallace, chief of the Eye Clinic of the University Hospital, treated these ulcers, and explained their origin to be due to an anesthetic condition of the corneæ which allowed particles of foreign matter to lodge there, which irritation, in conjunction with the impaired nutrition of the patient, caused the ulceration. To the best of the writer's knowledge this is the first case reported in which this condition was present.

CASE II.—An Irishwoman, aged 45 years, a domestic by occupation, gave a history of having been in good health until eighteen months previous to coming to the clinic. At that time was injured by being knocked off a street car, striking upon her back. Bruises were present upon the elbows and left shoulder, and she was confined to bed for a week or more. During this period she vomited blood several times.[1] Ever since this she has been excessively weak and nervous, being unable to work. At time of examination she complained of palpitation of the heart. Pulse 110, insomnia, poor appetite, tires easily, vertigo, frequent urination, pain in the back and under the shoulder blades, made worse by raising the arms; when deep pressure was made a tender point was present between the scapulæ; pain and muscular spasm noted when the spine was bent in any direction (says she has to sit on the floor to fasten her shoes); knee jerks increased, sensation good, urine normal. This case was last seen three months after receiving damages, when, if any change was present, the symptoms were all increased.

As the woman could neither read nor write, the improbability of her simulating such a typical group of symptoms, as was claimed by the defense, is apparent.

The histories of these patients should prove to the most skeptical that cases presenting the various symptoms of the traumatic neuroses do occur when no claim for damages has been brought, and that they do not always recover when the claim is allowed and compensation received.

A point worthy of emphasis is the fact that the symptoms of a number of these patients were entirely subjective, notably Cases I, II, III, IV, V, XII, XIV and XVII, and it is very probable that if they had been involved in litigation, malingering would have been charged against them. They should teach us, therefore, how careful we should be that, in giving an opinion in such cases, we do not do an injustice to a *bona fide* case by accusing the patient of simulation. The tendency of courts and of many of the so-called experts seems to be to regard all such cases as more or less frauds. Indeed, the word hysteria

[1] Vide Case IX.

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is regarded almost universally by the laity and by a large number of physicians as being synonymous with simulation, even when objective symptoms are present.

It cannot be denied that neurasthenia, when produced by overwork, exhausting disease, or any of the many other recognized causes for such a condition, may cause great suffering and disability when only subjective symptoms are present, and these cases would seem to prove that traumatisms of greater or less severity should be placed among those causes. That hysteria is a genuine disease and not a synonym for simulation there is no question among neurologists.[1] The doubter is referred to any modern work upon nervous diseases.

Therefore, as among the principal reasons for which compensation is awarded after accidents are the pain and disability caused, it is no more than reasonable that such cases, being injuries to the nervous system, are as much entitled to receive such compensation as one who has received a broken leg. The question may be asked, "How will we tell the malingerer from the *bona fide* case?" It is not within the province of this paper to discuss this question, its object being merely to show that such cases do occur; but the reader will find it answered in the many papers written upon this subject during the past few years, notably those of Putnam, Spitzka, Dercum, Offenheim, Dana, Knapp and others. It may be said, however, that common sense will often go a good way toward solving the question, as, for instance, in the last case reported, it would not seem probable that an ignorant woman, unable to read or write and without friends, would be able to simulate such a constant and typical group of symptoms as she had.

TREPHINING FOR CEREBRAL SOFTENING.

By Emory Lanphear, M.D., Ph.D.,

KANSAS CITY,

Surgeon to All Saints' Hospital, and to the German Hospital; Consulting Surgeon to the Good Samaritan Hospital; Professor of Orthopedic Surgery in the University Medical College.

The proposition to trephine in cases where softening of the brain is the clear and unmistakable diagnosis may be a novel one to many surgeons; so far as I know it is wholly original with me, as I can nowhere find record of cases similar to my own. By the term "softening" I do not mean *cerebral abscess*—all surgeons would trephine for

[1] Vide Putnam on the Medico-Legal Significance of Hemi-Anesthesia after Concussion Accidents, Amer. Journal of Neurol. and Psychiat., August and November, 1884.

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abscess if its location could be determined—nor to that condition formerly called "red softening," which is in reality only the initial stage of a suppurative inflammation, and which if not arrested leads to a destruction of the nerve fibres and cells by pyogenic micro-organisms, but to that condition which follows cerebral hemorrhage, embolism of some vessel beyond the circle of Willis, or sometimes thrombosis in like region. We know that soon after the injury takes place the process of softening begins and gradually advances until a group of convolutions, or even a whole hemisphere, becomes but a creamy mass, containing degenerated nerve-cells, masses of dark granules (bloodvessels in a state of fatty degeneration), remains of connective tissue, etc., but no pus. The boundaries of such areas of softening are often quite distinct from the healthy brain tissue surrounding, which has led to the opinion that the degenerated substance becomes "encysted." This is particularly true of softening following cerebral hemorrhage. If the skull be opened in such cases the brain and its membranes will often look swollen, and feel as if there were a sacful of fluid beneath, and puncture allows the escape of the softened mass, semi-fluid in consistence, of purulent appearance, but in reality not pus. Here, one would naturally think, is a complete hemiplegia, or a total aphasia, or a hemianopsia, deafness, or other manifestation of an obliterative process in the brain, with softening as the pathological condition—a state of absolute hopelessness that should debar even the most venturesome surgeon. Perhaps so, if there be evidences of destruction of a whole hemisphere, but frequently the foyer of softening is but a limited one, as in embolism of that branch of the middle cerebral which supplies the arm centre and the speech area. This particular region is selected as one for illustration because it is one not infrequently affected by embolism, and because its contiguity to the frontal gyri often causes symptoms of mental irritation, though how often do we see patients affected by hemiplegia without aphasia, due to either embolism, hemorrhage or thrombosis, presenting evidences of profound irritation or disturbance in those convolutions which preside over the intellect long after the subsidence of immediate pressure symptoms! We can all call to mind many patients whose characteristics were irritability, irascibility, fits of mental aberration, and even homicidal and suicidal impulses, of whom we have said to the friends: "You must bear with this man as well as you can, as he is not responsible—he has softening of the brain, and nothing can be done for him." In former years I made this assertion many times, but now I am not so positive—in fact, I am almost convinced—that such cases are amenable to surgical treatment; not, indeed, as an operation to be made with the object of improving a paralysis or other manifestation of destruction of

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the cortex or communicating fibres, but of clearing out a quantity of irritating material and substituting one (like the blood-serum or cerebro-spinal fluid) which will within a brief period fill the cavity and not give rise to symptoms of irritation. That such an operation is wholly practicable and may lead to improvement I have positively demonstrated. As an illustration the following case is cited:

CASE.—A. M., of Indian Territory, aged 56 years; cerebral hemorrhage six years ago, involving speech centre and arm. At first he was completely hemiplegic and totally unconscious. After a few days consciousness gradually returned, and later on the use of the leg was restored. At the time of examination the following notes were made: Aphasia is total—*i. e.*, practically so, his vocabulary being limited to "You do, you do," for yes, or acquiescence, and "Um-um" for no, or negation. Agraphia is total, but he recognizes some few written or printed words which have been read or explained to him many times. His memory is fully as good as before the "stroke," and his intellect appears but little affected. Paralysis of right arm is complete, but a fair use of the leg has been acquired. At times he is very irritable and has repeatedly threatened the life of his wife; for this, subsequently, he is very penitent, and indicates that the impulse is beyond his control. He regrets to a marked degree his mental irritability and moral irresponsibility; complains of a band-like sensation around his head, and often suffers intensely from headaches. Upon examination I made a diagnosis of softening of the brain, involving the region of the lower part of the Rolandic fissure and possibly also a part of the spheno-temporal lobe, as well as some of the parietal convolutions. I explained to him and to his physician that no one beside myself had ever even made the proposal to operate for cerebral softening pure and simple, and that it was purely experimental, as well as not wholly without danger. The reply was that any danger would be encountered for a bare possibility of even incomplete relief from the sometimes fearful, maddening sensation in the head.

Under such circumstances, on June 27, 1892, assisted by Drs. J. F. Binnie and J. D. Griffith, I removed a considerable portion of the skull over the affected region. On turning back the dura there was disclosed a cloudy infiltrate in the pia and an apparent fluidity beneath. Taking sharp-pointed scissors I plunged them into the middle of what should have been the third frontal convolution and withdrew them, open. Then followed a gush of broken-down brain and other débris of creamy consistence to the amount of fully a pint. The large cavity was carefully washed out with sterilized solution (*no antiseptic solution ever being permissible inside the skull*, except possibly in cases of abscesses), left filled as nearly full as possible with the same fluid, the dura was

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replaced and stitched and the scalp sewed in place without drainage, after careful arrest of all bleeding, and a firm compress of bichloride gauze applied. The operation lasted but a few minutes, and the patient was put to bed without shock. He slept better that night than in months, awakening the next morning with the smiling indication that his head was better. There was a rise in his temperatnre to 99¾° on the second day, when he insisted upon sitting up in a rocking chair. On the third day he was up around the halls of the hospital with a profoundly cheerful, "You do, you do," in reply to inquiries if he felt better.

The improvement was not temporary, as was predicted by some who heard for the first time my proposition that such cases can be relieved by operation. To this day he has had no recurrence of the bad symptoms, is passing an enjoyable life in traveling, and has sent me, I believe, six other cases for trephining, and with his grateful "You do, you do" is spreading the good news that for such hitherto helpless cases there is a probability of relief in surgical interference. Of course there is no improvement in his speech nor in the use of his arm, but he think he has far better control of the leg than before the operation.

Such cases as this, it seems to me, are more convincing than any theoretical objection, and especially are more powerful than all the verbal arguments based upon the conservatism of the days of pre-antiseptic surgery, and the erroneous idea that the cranium should be invaded only in cases of urgent necessity. In an experience in intra-cranial surgery, which now covers, I believe, more cases than that of any other surgeon in America, I have learned that an exploratory trephining is fully as justifiable as an exploratory laparotomy, and that many cases heretofore regarded as beyond the help of the physician may with propriety be turned over to the surgeon, among which may be reckoned certain selected cases of cerebral softening.

MEMORANDUM.

MATERNAL IMPRESSION AS A CAUSE OF ANENCEPHALUS.

THE mother, wife of an undertaker, when advanced in pregnancy at about the fifth month with this, her third child, happened into the office of her husband's establishment, where she was very unexpect-

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ANENCEPHALUS.

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edly surprised by the remains of a man who had just been killed in a railroad accident, by falling under the cars, the wheels separating the upper portion of his head, above the ears and eyes. The unusual sight of a mutilated head made a deep impression, and she often spoke of it to her husband yet no harm to her offspring was ever thought of by herself or her husband; in fact, neither had ever heard of such occurrences. When the child was born it was dead, and presented the appearance shown in the photograph, which both mother and father declare is identical in the appearance of its head to the corpse.

W. B. DEWEES, M.D.

SALINA, KANSAS.

CLINICAL DEPARTMENT.

UNIVERSITY MATERNITY HOSPITAL.

[Service of Barton Cooke Hirst, M.D.]

A REMARKABLY APATHETIC UTERUS.

ANNIE J., aged 21 years. Last *regular* menstruation March 15, 1892, though she reported slight show April 15. Date of impregnation was uncertain, but not later than April. Fœtal movements in August. Date for confinement at the latest then was January 22, 1893. Patient was anemic, suffered much from nausea, obstinate constipation, and a general want of tone.

February 17, 1893, almost a month after term, it was thought best to induce labor. 4.30 P.M., introduced a No. 8 bougie; February 18, 9.30 A.M., introduced second bougie; February 19, 9.30 A.M., introduced third bougie, with effect of producing slight irregular pains which soon died away.

February 20, 4.30 P.M., injected ℥ij. of sterilized glycerine. Sharp pains for six hours, which then died away without securing any appreciable dilatation.

February 21, 9.30, again injected ℥ij. of glycerine. Pains kept up until 2 P.M., when they again died away.

February 21, 4.00 P.M., introduced first size Barnes' dilator for one hour without effect; 10.30, second size for two hours; pains established and kept up until 2 A.M., February 22, with still very little effect on dilatation.

February 22, 2 P.M., introduced third size Barnes' dilator; left in position for three hours; pains ceased entirely at 7 P.M.

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February 23, 10 P.M., pains began regularly every five minutes, seemingly severe, but very ineffectual, dilatation not advancing.

February 24, at 12 P.M., real work began; dilatation was completed at 4 A.M., February 25, and at 6.20 A.M. the patient gave birth to a living child. Head measurements:

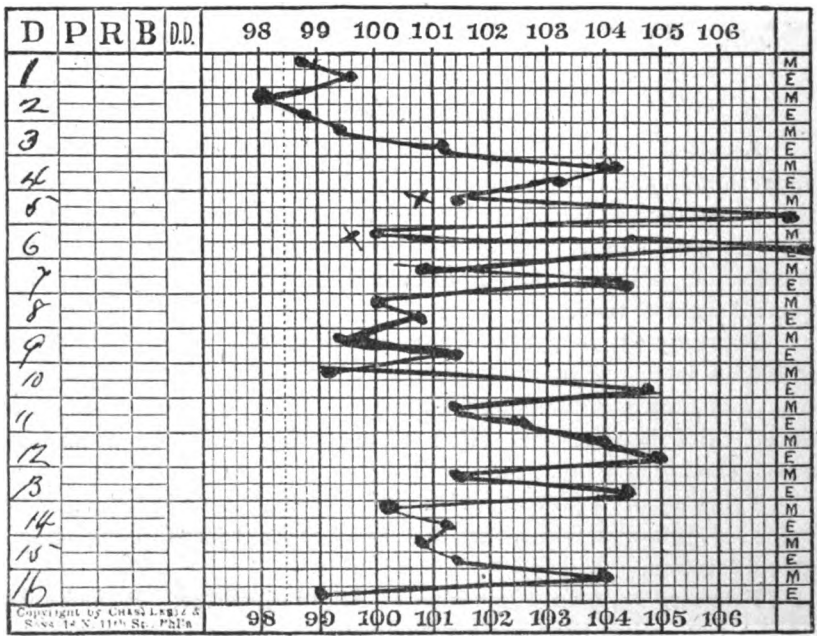
B. T., 8 cm.	O. M., 12½ cm.	Cir. O. F., 37 cm.
B. P., 9 "	Tr. B., 10 "	" O. M., 38 "
O. F., 12 "		" Tr. B., 28 "

Head was not oversized, and fitted easily in the pelvic cavity. Head was very hard.

Pelvic measurements: Crests, 29 cm.; sup. spines, 27 cm.; ext. conj., 22½ cm. Lying-in normal in every respect.

CASES OF ARRESTED LABOR IN PRIMIPARÆ.[1]

CASE I.—Celia B., aged 14 years. Week before labor she had slight pain in back. On examination found, cervix only about one-third effaced, but very soft and dilatable to the size of a half dollar. A week



later true pains came on. The first stage was long, but pains not severe, and second stage was easy.

Fourth day of puerperium lochia became suppressed and offensive, uterus high and tender, and the symptoms of sepsis were marked for several days.

[1] By this title is meant those rather rare cases, especially in primiparæ, in which the os is dilated to a considerable size days and even weeks before true labor appears.

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CASE II.—Ida H., aged 16 years. February 21, the patient had a fall, followed by slight pain; the cervix became almost completely dilated, though not effaced; head freely movable in superior strait; pains entirely ceased, and patient went about the house with the cervical canal so dilated that I could have easily inserted my clinched fist in it until March 1, when pains reappeared, and she had a very easy delivery March 2. Lying-in perfectly normal.

CASE III.—Lena S., aged 21 years. Cervix dilated to size of half-dollar and nearly completely effaced two days before labor commenced. She had a few slight irregular pains in the back. Labor and lying-in normal.

CASE IV.—Alice C. complained of irregular pains a week before confinement. Cervix soft and dilated to the size of half-dollar. Labor easy, first stage short after regular pains began. *Septic phlebitis with hyperpyrexia following intra-uterine disinfection.* It is not generally appreciated that in certains forms of sepsis after labor, notably in septic phlebitis, intra-uterine disinfection is not only useless, but actually harmful. This is well illustrated by the appended temperature chart. Following intra-uterine disinfection (marked by an X), the temperature on two occasions rose to 107° and over. No further local interference was attempted. The treatment was restricted to general stimulation, pushed energetically and the patient recovered, although at one time there were evidences of septic mestastasis in one lung. In all septic fevers after childbirth an intra-uterine disinfection should be attempted, but when it does harm, or accomplishes no good, it should not be persisted in, for we know that in certain forms of septic infection the patients are not in the least benefited by it.

UNIVERSITY HOSPITAL.

(Service of Dr. JOHN ASHHURST, Jr.)

ABSCESS OF THE BRAIN OCCURRING FOUR MONTHS AFTER GUNSHOT WOUND OF THE FACE; AUTOPSY.

On October 7, 1892, H. B., aged 15 years, while gunning with a companion near the central part of Pennsylvania, received a single charge of a double barrel shotgun in the face. The extremity of the barrel was but three feet from the body and to his left, so that the missiles took a course obliquely across his face. The patient was immediately placed in a conveyance and driven to his home. Upon examination it was found that the face was horribly lacerated, the tissue ploughed up and mixed with shot and powder. The nose (including the nasal bone), the right eye and the right malar bone

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were completely destroyed. The left eye was uninjured. Pain and hemorrhage were slight. There was severe shock. Pulse 120; temperature subnormal; inability to swallow; absolute blindness; a violent chill of short duration occurred. Later in the day the pulse became full, strong and less frequent (80). On the following day the pulse was 110, and there was some delirium. The sight improved, although he was still unable to recognize faces. Later, the pulse was 120; temperature 101°, and the delirium more marked. From this time on the patient's condition steadily improved. The sight in the uninjured eye was restored. The large wound was being filled up with granulation tissue.

I am indebted for this above history to Dr. Stayer, of Roaring Spring, the patient's attending physician. The patient was admitted into the University Hospital on November 9, 1892. It was proposed to form a new nose by plastic operation.

On admission, the patient's temperature was 99°; his general condition good. Examination of the face showed a granulating surface about the size of a fist. A fragment of the left ala was all that remained of the nose. The posterior nares were patulous. Several small spicules of the malar bone were found imbedded in the newly-formed tissues. The right orbit was covered with healthy granulation tissue, which had communicated to it the pulsations of the brain. For one month after admission the patient's temperature remained constantly between 98° and 99°.

On December 10 the first plastic operation was performed. This consisted in making a lateral foundation for the nose. A flap was dissected from the right side of the face and sutured to the skin on the superciliary region, thus covering entirely the right orbit. This left a small triangular surface upon the side of the face, and the granulating nasal surface. The patient reacted well from the operation, and was soon out of bed. Good union was obtained, the triangular area soon cicatrizing. On January 10, 1893, the patient's temperature unaccountably rose to 102$\frac{1}{5}$°. This rise was accompanied by an attack of vomiting, an unusual occurrence with the patient.

On January 20 the temperature was 99$\frac{4}{5}$. On January 21 it was normal. Later in the day it rose to 100$\frac{4}{5}$°, subsequently dropping to 97°. On January 24 a second operation was performed, a rhinoplasty after the Indian method. A flap was raised from the forehead and scalp, twisted around and sutured to the edges of the cheeks by the "tongue and groove" suture. The temperature after the operation reached 102°, gradually declining to 98$\frac{1}{2}$°, but later on in the day rising to 100$\frac{1}{2}$°. The temperature being of importance in this case, below is appended a daily record:

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Jan. 21 to Feb. 2—Temperature fluctuating between 98° and 101½°.
Feb. 2—Temperature normal.
Feb. 3—An unaccountable rise to 104⅕°. Several attacks of vomiting.
Feb. 4—Gradual decline to 99°. Vomited.
Feb. 5—100°.
Feb. 6—100°. Four attacks of vomiting.

On the morning of the 6th the patient was feeling about as usual, and answered questions rationally. At twelve o'clock he began to suffer excruciating pain in his head, throwing his hands to that region and screaming aloud. At 4 P.M. he suddenly became comatose, although five minutes before he has been speaking rationally. The pulse was full and strong, 120 in frequency, the breathing stertorous, and the axillary temperature 105⅕°. There were no paralytic symptoms. Death from respiratory failure supervened in the course of half an hour. Abscess of the brain was diagnosticated. An autopsy being requested, permission was granted to examine the brain.

Autopsy.—The calvarium was removed without difficulty. The dura mater of the convexity presented nothing abnormal. The pia and arachnoid were transparent, but many of the sulci showed a perivascular opacity, which was purulent in character. Some of the small veins on the surface of the convolutions presented the same perivascular suppuration. This appearance was most marked upon the left side and in the fissures leading toward the fissure of Sylvius. The orbital portion of the frontal lobe was the seat of a large abscess, the cavity of which would have held a large egg. The anterior abscess wall was adherent to the nasal side of the orbital plate of the frontal bone, at which place there had evidently been a fracture the size of a five-cent piece. A loose fragment of bone, healthy in character and half an inch in diameter, lay in that position. On separating the adhesions at this point the abscess ruptured, permitting the escape of a yellowish-white, somewhat gelatinous pus. Posteriorly, the abscess extended as far back as the anterior perforated space, and involved the inner and middle orbital convolutions. The depth of the abscess from the surface to the base was three centimetres.

In the left hemisphere there was nothing abnormal. The right ventricles were normal, but the head of the caudate nucleus was intensely congested, the lower part of it being soft and forming part of the abscess wall. The wall of the abscess showed no distinct membrane, but soft, broken-down brain tissue. No other organs were examined.

JAY F. SCHAMBERG, M.D.,
Resident Surgeon.

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EDITORIAL.

A FOUR YEARS' MEDICAL COURSE; ITS IMPORTANCE TO THE PROFESSION AND COMMUNITY.

THE opening of the Medical Department of the University of Pennsylvania in October will mark the inauguration of a graded four years' course of study. While the need of an extended course has long been recognized, its adoption was only possible after it was assured that the profession and community were ready to lend their co-operation toward making a step in the direction of higher medical education a success. Fifty years ago a few months of study in a medical school were thought quite sufficient to furnish an equipment for the successful practice of medicine. It is true that at that time the field of medicine was limited when compared with its present extended scope. Bacteriology and physiological chemistry were unknown sciences; histology, dermatology and even pathology were in their infancy; anesthesia was undiscovered, and operations in major surgery, which are now daily occurrences, were not within the range of possibility. While medical education has made considerable progress, its advance has not kept pace with the demands of increased knowledge. In celebrating the four-hundredth anniversary of the discovery of our land, as Americans we regard with just pride the wonderful achievements wrought in the various industries, arts and sciences, but as physicians we must regret that an equal development has not extended to medical education; in this field we have been fairly outrivaled by our European brethren. But now an advance has been instituted, and it seems highly fitting that the Medical Department of the University of Pennsylvania—the oldest school of its kind in the country—should be among the first to raise the standard of medical education in America. The wisdom that prompted the movement cannot be questioned. A few, no doubt, may point to illustrious men who were graduated under the old *regime*, but their unusual success must be attributed to their brilliant intellects and indomitable energy rather than to their imperfect scholastic training; and the greater credit must be accorded to the medical school which produces not a score of *savants*, but which gives to all its graduates the best possible equipment.

One of the advantages of a three years' over a two years' course is well illustrated in the large proportion of hospital appointments University graduates have obtained in competitive examination. In the

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past ten years they have secured five-sixths of all such appointments in which they have been competitors. To the community these results not only indicate superior scholarship, but also a training which has been the means of securing a still further preparation for the practice of medicine, nearly 60 per cent. of the graduates having been, in recent years, enabled to obtain hospital positions.

The time was when all physicians were regarded by the laity with equal favor, and to be a doctor was to be endowed with power a little short of the supernatural, but that time has passed, and the practice of medicine is now viewed as a business, the unskilled being soon pushed aside for those who can render efficient service. In the future a thorough education will be the chief hope of success, since the community will demand a guarantee of the practitioner's qualifications and a knowledge of his attainments. In the February number of the *Forum*, Dr. John S. Billings, in an interesting article on "Medicine as a Career," writes as follows: "This country is in no need of men possessing the diploma of doctor of medicine; it already has at least twenty thousand more of them than it requires or can properly support; but it does need several hundred, say a thousand, more of such properly-trained physicians as I have indicated, and I am quite sure that the people will be able to recognize them when they appear, and will take proper care of their material interests."

Next March a law will go into effect in this State making it obligatory upon medical students to pursue their studies for four years. Three of these years the student must spend in college. The other year is not provided for, but presumably it is to be passed with a preceptor. Study under a preceptor has not the significance it had in former years. It has become, in most instances, a mere formality, and the wise student will spend the entire four years in college with skilled instructors, where his time will be fully occupied and evenly apportioned among the various branches of medical science.

The effect of lengthening the course in a few prominent schools will be far-reaching. At present about 4000 graduates are annually turned out from the medical colleges of the country. The conditions upon which a diploma can be obtained are so easy that hundreds are attracted to what they deem a lucrative field of labor who have no qualifications for the work and no adequate appreciation of its demands. Fortunately for the profession and community at the end of a few years not more than 30 per cent. of those that were graduated are in active practice, the large majority of the others having been compelled to seek other employment. Notwithstanding this remarkable falling off of the unsuccessful, the ranks are still overcrowded with second-rate men, and perhaps nothing will do more to solve the problem of getting rid

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of the overcrowding than the disparity that will obtain between the success of those who have spent time and energy in securing a thorough education and those who have practically purchased for a few dollars their right to practice.

THE TREATMENT OF PROLAPSE OF THE UTERUS.

THE treatment of prolapse of the uterus is a matter in which gynecologists widely vary in their methods. The old treatment of simply narrowing the calibre of the vagina is still adhered to by many; some combine with it the operation of hysterorrhaphy, or Alexander's operation, while other more radical operators recommend the removal of the uterus by vaginal hysterectomy. We believe that each of these procedures has its especial indication in selected cases. While complete prolapse of the uterus is an affection usually met with late in life, after the climacteric, yet it sometimes presents itself for relief in women who are yet in the childbearing period. In these women no remedial measures should be resorted to which will interfere with the possibilities of their future maternity. The performance of anterior colporrhaphy with colpoperineorrhaphy will often be followed by a disappointing result unless provision be made that the axis of the uterus be kept at an obtuse angle to that of the vagina, or, in other words, that the uterus be drawn into anteversion. This drawing forward of the uterus may be done by a conjoined Alexander's operation of shortening of the round ligaments, or better by the performance of hysterorrhaphy, which affords an additional anchorage to the uterus by sewing its fundus fast to the anterior abdominal wall.

In women who have passed the menopause the choice of operation will depend upon the condition of the uterus. Where the organ is small, the amputation of the cervix to lessen as much as possible the weight of the uterus, both directly and indirectly, by setting up a process of retrograde metamorphosis, followed by the narrowing of the vaginal calibre by calporrhaphy of the anterior wall and the restoration of the perineum, will constitute the best procedure. If the uterus is large, total removal through the vagina should be performed, and the stumps of the broad ligaments carefully stitched into the opening into the vaginal tube. By this means the vagina is drawn into place and supported by the retraction of the broad ligament stumps. Hysterectomy is imperatively indicated under these circumstances, from the danger to the woman in retaining an enlarged uterus at the time at which malignant diseases of that organ are most frequent, the great liability of failure in supporting its increased weight by plastic operation, and the very small mortality following the operation in the hands of careful operators.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

Albuminuria in the Apparently Healthy.

Washburn (*Medical News*, April 1, 1893), in an interesting paper, states his belief as follows: That the occurrence of albuminuria (he presumably excludes evident disease of other parts of the genito-urinary tract) is, in every instance, an indication of an abnormal physical condition of the kidneys themselves. It may be transitory and never recur, the kidneys suffering no permanent injury from the condition which produced the symptom, or it may persist for a considerable time —twenty years—the probability of cure diminishing with the lapse of time, and the probability of further evidence of structural change in the kidneys increasing. The causes said to produce the condition are diet, cold and cold bathing, muscular exhaustion and mental strain. He reports 1070 urinalyses, thirty-eight cases of albuminuria being encountered. Two died of chronic nephritis, one four years and one three years after examination. Four are suspected to have chronic nephritis at present. One died of pulmonary tuberculosis in fourteen months after examination. Six were completely lost sight of. Fourteen are known to be living and in comparative health one to five years after examination. Five are still albuminuric, of from six months to four years' standing. Six are known to have recovered. The treatment is always unsatisfactory, none of the cases responding to the use of drugs. He believes that Lecorché and Talamoy, perhaps, give the best present view of the prognosis in such cases. "It is impossible to attach any prognostic value to the presence of albumin in the urine. Albuminuria indicates an alteration of the glomeruli filtering membrane; transient or permanent, abundant or minimal, it indicates nothing else. . . . To form an opinion of the extent of the lesion . . . other phenomena, general and local, must be considered conjointly with the albuminuria."

Self-Infection from the Intestinal Tract.

Bates (*New York Medical Journal*, April 22, 1893) defines self-infection as that "condition of self-poisoning which results from the entrance into the circulation of toxic material developed *de novo* within the human body." He believes that the production of ptomaines is responsible for the evil consequences of self-infection (curiously, Vaughan's name is omitted from the list of authorities quoted). The effects, he goes on to state, are not seen in specific lesions. He believes, however, that cirrhosis of the different organs is frequently a result of intestinal disturbances. Anemia becomes pronounced, and there is a loss of weight and

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strength. The nervous system is early affected. He believes that many cases of melancholia, hypochondriasis and various degenerations of the nervous system are dependent on the daily absorption of toxic material from the intestinal tract. Asthma, epilepsy, syncope and collapse are among the conditions which are caused by self-infection, while the local irritant effect of the poison in the lungs frequently predisposes to phthisis. Etiology: Intestinal and gastric indigestion are the preliminary steps. The neuroses, alcoholism and excessive use of tobacco, are among the predisposing causes. He believes the nervous system to be directly responsible in the majority of cases. The symptoms are distress, pain and tenderness referred to the stomach or abdomen, persistent flatulence or dilated and knotted intestines, or the intestinal symptoms may be veiled by the more prominent nervous symptoms. The loss of weight, careworn face, the conditions of the circulation, the symptoms of irritation and derangement of nerve centres, the extreme melancholia and hypochondriasis, will often suggest the possibility of intestinal toxemia when direct intestinal symptoms are absent or meagre. Frequently the symptoms will suggest hysteria or hypochondriasis, but careful study will reveal the acute infection from the intestinal tract. In arriving at a diagnosis there must be careful and frequent examinations of the urine and stools. The diet test must be used; starches are voided in excess, sweets add to flatulence, and fat appears undigested in the stools. A diet of carefully prepared meats is given, and then one of the above substances is added to the diet. Careful examination of the stools will show the presence or absence of the substances. The indications for treatment are: (1) To put the digestive system in a normal condition. (2) To remove all causes which aggravate the condition. (3) Persistent and thorough disinfection of the intestinal tract.

Raw Pancreas in the Treatment of Diabetes Mellitus.

White (*The British Medical Journal*, March 4, 1893) has treated two cases of diabetes by putting them on an anti-diabetic diet, observing the condition of the urine, and then adding fresh pancreas or subcutaneous injections of extract pancreatis. In the first case the sugar was diminished; in the second, it was not affected. The amount of urine was not affected. The quantity of urea was not changed. Both patients relished the pancreas, but their general condition was not materially changed. The disadvantages of the treatment are a peculiar erythema, accompanied by fever, which occurred as a probable result. He concludes that the method of treatment, judging from the two cases, is of no value.

Notes on Appendicitis.

McDonald (*Montreal Medical Journal*, April, 1893), after reporting three cases of appendicitis in which operations became necessary, concludes as follows: Surgeons who not long since advocated waiting three or four days before operating, now concede that operation is determined by presence of pus in the region of the appendix. We shall next see upheld the rule of operating as soon as a positive diagnosis of appendicitis is made, that is, when there is undoubted circumscribed peritonitis.

Arsenical Neuritis Following the Administration of Fowler's Solution.

Osler (*The Montreal Medical Journal*, April, 1893) reports a case of Hodgkin's disease which was given f℥iv ʒj ♏xviii of Fowler's solution, representing

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sixteen and a half grains of arsenious acid, in a period of seventy-five days. At the end of that time the patient was tender to the touch, and walked stiffly. He rapidly began to walk with difficulty, the knee jerk disappeared and the legs became flabby. Tht faradic excitability of the nerves was diminished, and there was beginning reaction of degeneration. He also had pigmentation of the skin.

A Case of Paraplegia Brachialis.

Krafft Ebing (*Wiener klinische Wochenschrift*, March 9, 1893) reports the following case: Franz M., aged 38, a strong, apparently healthy man, with good family history and good habits. He never had syphilis, and with the exception of typhoid fever at 19, and pneumonia at 35, he was never sick. June 25, 1892, he was attacked by pneumonia, and was able to work by July 1. On the 2d of July he was taken sick again, and remained in bed. On the morning of July 4 he awoke with paralysis of both upper extremities. The arms hung useless by the side, and it was possible to move only the fingers slightly. Sensibility was lessened in both arms. After about ten days the sensibility returned, and the movement then became somewhat better. About the same time, however, dyspnea, dysphagia and partial deafness appeared, with severe pain in the neck, back, shoulder and left forearm. By pressure or passive movement the pain became almost unbearable. The pain lasted two weeks and then entirely disappeared. In two weeks the shoulder muscles began to waste. January 12, 1893, the patient's condition was: Left shoulder drooping, curvature of spine to right. There was wasting about the shoulders. Passive movement of all the joints was free and painless. It was possible for him to lift his arms thirty degrees. Sensibility was intact. Some of the muscles had lost their response to the faradic current; in others the excitability was diminished. There was no response to the galvanic current in the supra and infra-spinatus muscles. Frequent and intense movement was present in all the atrophied muscles. Diagnosis: Paraplegia brachialis as a result of double multiple neuritis in the region of the brachial plexus, and poliomyetitis of the fifth and seventh segments of the end, can be excluded by the disturbances of sensibility and the later pain and course of the disease. The relatively favorable course and the absence of vaso-motor changes speaks for neuritis. The dysphagia, dyspnea and deafness are explained as a neurotic accompaniment of the neuritis.

Congenital Tremor of the Upper Extremities.

M. G. Lemoine (*Lyon Medicale*, March 19, 1893) describes a case of congenital tremor of the upper extremities in a soldier 21 years of age. The tremor is a rhythmic vibration of eight or nine oscillations per second. When the patient attempts to carry a glass to his mouth the tremor augments for a moment, but instead of increasing the nearer he approaches his goal, it soon falls back to the original rapidity and amplitude. When he is under observation it increases slightly. A very careful observation for years has shown always the same rhythm and amplitude. There is absolutely no other symptom of nervous disease, nor, in fact, of any other disease, the man being in first-class condition. There is no evidence of alcoholism, syphilis nor other intoxication or infection.

Dentition as a Cause of Disease.

Dr. Sejournet (*Revue Mensuelle des Maladies de l'Enfance*, Paris, April, 1893) gives an interesting series of statistics, extending over five years, in regard to the so-called maladies of dentition. He concludes:

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1. From all that precedes I have a right to attach very little importance to dentition as a cause of infantile diseases, since in 37 cases only from 734 did there appear to be any relation between the dentition and the malady.

2. This relation is often a coincidence, as, for example, the cutting of teeth in the course of infectious diseases.

3. Of cases in which the dentition appears to have a direct bearing on the illness, I find only 7 in 734.

Epileptiform Seizures in Diabetes.

Dr. Roques (*Revue Generale de Clinique et de Therapeutique*, March 22, 1893) describes a case of epileptiform convulsions occurring in the course of diabetes mellitus. The patient, aged 59 years, had been suffering from diabetes for seven or eight years with comparatively mild symptoms. She began to feel fatigued and to emaciate, and felt a continuous severe pain in the left temple; her memory began to fail and she became very anxious about herself. Suddenly one day she threw herself on the bed, gave a cry and became unconscious. At the same time there was a tetanic spasm of all the muscles of the right side of the body. Foam came from the mouth, and soon the affected parts were agitated by clonic spasms of slight amplitude. After several minutes the muscles relaxed and the patient fell into a deep, quiet sleep. After two or three hours she awoke, drank some water and arose to urinate, when another attack came on exactly like the first. Such attacks, at regular intervals, continued for four days, when they ceased. The patient slowly roused, was slightly aphasic, and remembered nothing of what had occurred. After five days she had completely recovered her former condition.

Her urine was carefully searched during this time, but it was always normal.

Shortly after this she was attacked with phlebitis in the left thigh, and then in the right. Perhaps there had been a thrombosis of a sinus in the brain.

The Arterial Murmur in the Thyroid in Basedow's Disease.

Guttmann (*Deutsche medicinische Wochenschrift*, No. 11, 1893) believes that two factors cause this sound, the hypertrophy of the left ventricle of the heart and the dilatation of the vessels in the thyroid. He believes an arterial murmur in the thyroid is pathognomonic of Graves' disease, and is of especial value in doubtful cases and is of greater value than Graefe's sign, the inability of the eyelid to follow the eyeball in the downward movement. The sound occurs in every case of the disease. The venous hum which is heard in the neck probably has its origin in the accompanying anemia.

The Treatment of Myxedema.

Vermehrey (*Deutsche medicinische Wochenschrift*, March 16, 1893) reports six cases of myxedema treated by the administration of thyroid glands. They all improved. He considers the feeding of the glands to be much less troublesome and quite as efficient as hypodermic injections of the extract. Laache (*Ibid.*) reports a case fed on thyroid glands of sheep, in which a remarkable cure took place after three months of treatment. The photographs of the patient before illness, during illness and after treatment showing a remarkable change in the fascies. During the treatment the pulse became rapid and general weakness of the patient supervened, but gradually disappeared. The author thinks it likely that the patients so treated will relapse. Wichmann (*Ibid.*) also reports two cases, both of which were markedly improved by hypodermic injections of Murray's extract.

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SURGERY

UNDER THE CHARGE OF
J. WILLIAM WHITE, M.D.,
ASSISTED BY
G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

A Case of Removal of a Portion of the Sigmoid Flexure.

In the *Lancet* of March 11, 1893, TREVES reports the case of a woman, aged 44, suffering from intestinal obstruction caused by a ring-like stricture in the sigmoid flexure. The abdomen was opened by a median incision three inches in length and the affected gut drawn out. It was then clamped by the fingers of an assistant and seven inches of it cut away; a V-shaped piece of the meso-colon was also excised and the gap closed by sutures. The upper part of the gut being larger than the lower, it was partly closed by a row of continuous sutures and another of Lembert's. The two ends of the divided gut were then united in the same way by a continuous suture followed by a Lembert. It was then returned to the abdomen. The operation took an hour and a quarter. The highest temperature was 101°, on the evening of the second day, and the bowels first acted on the third day. The patient recovered perfectly, the growth exhibiting the ordinary characteristics of a cylindrical epithelioma.

The Operative Treatment of Bad Cases of Bone and Joint Tuberculosis by Billroth's Method.

FEDOR KRAUSE, in the *Deutsche medicinische Wochenschrift*, March 3, 1892, describes his manner of employing iodoform and glycerine in the treatment of local tuberculoses. The tuberculous focus is first removed as much as possible by operative procedures, and then the wound carefully dried, closed, all except a single suture, and injected with iodoform emulsion. The last stitch is then inserted and a compressive bandage applied. In bone cavities they are to be tamponed with iodoform gauze, which is left in situ five to eight days. On its removal the wound is filled with 10-per-cent. iodoform-glycerine emulsion and closed. Fistulas are excised and likewise closed. If the wound cannot be closed by suturing its sides, then a flap may be taken from the neighboring sound parts. This closure of wounds is done even when packing has been resorted to, after its removal from the fifth to the eighth day. The efficacy of iodoform in closed cavities is said to be due to the fact that the bacillus tuberculosis is aërobic, and the object of treatment should be to make the cavities as air-tight as possible.

A Case of Perineal Lithotrity, with Some Remarks upon Dilatation of the Prostate.

In the *Annals of Surgery*, April, 1893, L. BOLTON BANGS describes an instructive case of stone in the bladder, associated with enlargement of the prostate and cystitis. A supra-pubic operation was performed, but recovery was slow; vesical tenesmus persisted for four days after the removal of the stone, and he was only partially relieved of his symptoms. He was obliged to urinate every two hours. Two years later another stone was removed by Dolbeau's operation

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of perineal lithotrity. The dilator was introduced through the perineum, and expanded to its fullest extent. After this operation he was able to stand up, and almost entirely empty his bladder in a strong, full stream, with every sense of comfort. At the first operation the prostatic outgrowths, which appeared to obstruct the exit of the urine, were removed, and the urethral orifice dilated with the finger, but urination was no better, and the author calls attention to the good effect following the extreme dilatation by the Dolbeau dilator; he suggests that it may have ruptured or paralyzed some of the muscular fibres of the prostate.

Grafting with Pigeon Skin.

In the *Boston Medical and Surgical Journal* of April 6, 1893, Aldrich advocates the use of pigeon skin for grafting purposes. He kills a squab, and immersing it in warm boracic solution, plucks the feathers and scrubs the skin. The latter is then removed in large pieces and placed in warm sterilized water. The ulcer having been cleansed with boracic solution, the grafts are laid thereon and covered with gutta percha tissue, over which boracic compresses are laid. In forty hours the dressing was removed and plain gauze, with resin ointment, applied. The author claims success by this method.

The Complete Removal of Hydatid Cysts of the Liver, Along with the Cyst Wall by Abdominal Section.

W. Bruce Clark, in the *British Medical Journal*, April 1, 1893, gives the histories of three cases of hydatid cysts of the liver and one of the kidney, in which he removed the cysts and stitched the edges of the cavity remaining to the abdominal wall. Drainage was used in all cases. Treatment by aspiration is not without danger, and does not always effect a cure; even in cases of apparent cure the disease may return later. The operations in the cases recorded were not especially difficult, as they had been undertaken before adhesions had formed to surrounding tissues. It is not wise to defer operating too long.

A New Method of Surgical Treatment for Tonsillar Hypertrophy.

Ruault, in *L'Union Medicale*, January, 1893, describes his method of removing hypertrophied tonsils. He claims it is superior to both the tonsillotome and ignipuncture in cases where such methods are usually employed. It does not cause bleeding like the former, nor pain, either immediate or consecutive, as does the latter. It enables one to operate with a precision and surety lacking in other methods. Cocaine having been applied to the tonsil, any crypts containing concretions are cleaned out, and such adhesions as may exist between the tonsil and soft palate destroyed. By means of a cutting forceps, one blade of which is flat and fits into the opposite one, which has a sharp cutting edge, small pieces of the projecting tonsil are then removed. After several pieces have been cut off, the raw surface is energetically rubbed with a swab of cotton moistened with iodine, 1 part, iodide of potassium, 1 part, and water, 6 to 8 parts. The discomfort arising from this passes off in a quarter or half hour. In a few days secondary retraction will have reduced the size of the remainder of the tonsil, and, if necessary, any projecting pieces may be removed as before. Of eighty cases treated by the author in only three was there a necessity of operating a third time, except in the case of infants.

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THE TECHNIQUE OF GASTROSTOMY FOR ESOPHAGEAL STENOSIS.

VON NOORDEN, in the *Berliner klinische Wochenschrift*, January, 1893, p. 6, contributes a study of the technique of gastrostomy. The object to be attained is the maintaining of a gastric opening, through which the patient can be nourished, so constructed as to enable the gastric contents to be easily retained and allow the patient to go around. The best method yet devised is that of Witzell (*Centralblatt für Chirurgie*, 1891, p. 601). He made the wound beneath and parallel to the ribs. Into this opening the stomach was brought, and on its surface was laid a rubber tube the size of a lead pencil. Over this tube were united, by means of Lembert sutures, two folds of the stomach walls. The lower end of the tube was then passed into the stomach by the smallest possible opening, and by means of additional sutures the tube carefully encased. A row of sutures was then used to unite the stomach to the abdominal walls, after which the terminal end of the tube was brought out to the surface through a separate opening made through the transverse and rectus muscles. The author reports five cases operated on in this manner by Mikulicz. The latter has operated several times since by the same method, and the results have been so perfect that not a single drop of the gastric contents ever leaked by the side of the tube. Nourishment was administered at once through the tube from the moment of the completion of the operation. The results in all cases were excellent, and the procedure is highly recommended.

THE USE OF AMBULATORY DRESSINGS IN FRACTURES OF THE THIGH AND LEG, AS WELL AS IN COMPLICATED FRACTURES.

KORSCH (*Berliner klinische Wochenschrift*, January 9, 1893) describes the method in use in Prof. von Bardeleben's clinic of treating fractures of the lower extremities when the patient is allowed to walk. The use of padding underneath the plaster-of-Paris dressing is objected to. The author says it soon loses its elasticity, becomes impregnated with sweat, and the plaster thus becomes loose, and displacement and excoriations are apt to occur. He advocates a return to the procedure of von Adelmann of fifty years back, to anoint the skin with some fatty material and apply the plaster directly thereon. In applying a bandage to the leg the knee is bent and the foot held at a right angle. When a change in direction of the bandage is desired, it is cut with a pair of scissors and reapplied instead of reversing. This avoids the formation of folds. To strengthen it pieces of leather —shoemaker chips—are inserted. The bandage is allowed to remain on from ten to fourteen days. Fractures involving the ankle are treated on a Watson splint, and moist compresses applied for eight days. They are then put in plaster, which is changed every eight days. In compound fractures, if not severe, the plaster bandage is applied in a couple of days; if more severe, in six or seven days. The wound is tamponed with iodoform gauze and brought together with silk sutures, one end of the gauze being allowed to protrude; additional gauze is then applied and the plaster dressing put on over all. In fractures of the femur the patient is kept in bed for seven or eight days, and twenty-five pounds extension applied while the limb is retained in an abducted and elevated position. The patient is then placed on a table provided with a Bardeleben pelvic supporter, and a plaster bandage applied to within four inches of the tuberosity of the ischium. A padded ring with two side irons, like a Thomas' splint, is then pressed firmly up on the tuberosity. The two side wires are then brought down the leg, past the knee, and along the sides of the foot. The whole is next covered with additional plaster bandages. The patients are allowed to go about on crutches twelve hours after the application of the bandages.

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A Method of Performing Intestinal Anastomosis by Means of Decalcified Bone Bobbins.

Mayo Robson, in the *British Medical Journal* of April 1, 1893, describes his method of performing intestinal anastomosis. He uses a decalcified bone bobbin instead of Senn's plates. It consists of a cylinder of decalcified bone, with a flange at each end, and has the following dimensions: Total length of tube, ⅞ inch; greatest diameter of ends, 1⅛ inch; inside diameter of tube, ⅜ inch; outside diameter of tube, ⅞ inch. The rims or flanges are ⅛ inch thick and ⅛ inch high. Other sizes have also been made; one used for cholecystenterostomy being only as thick as a number sixteen English catheter. The parts of intestine to be united having been brought out of the median incision, and the part to be incised having been decided on, a continuous silk Lembert suture was inserted half way round the proposed opening, stitching the two parts of the intestine together. The mucous surfaces were then united by a silk or chromicised catgut suture for the same distance. The gut was then incised and the button inserted. The inner or marginal suture was continued around, drawn tight and cut off. The outer or serous suture was passed around the remaining half, thus uniting the serous surface for a half an inch from the margin of the wound. The two cases in which the author tried this method progressed favorably as far as the operation was concerned.

The Intra-Capsular Extirpation of Goitre by the Use of Methodical Compression of the Wound.

In the *Berliner klinische Wochenschrift* of January 16, 1893, will be found a description, by Julius Wolff, of his method of operating for goitre, with a discussion thereon: He claims: (1) Owing to working inside the capsule, wounding of important parts is not only avoided, but rendered impossible. (2) The patient is spared to the greatest extent loss of blood. (3) It reduces the operation from being an excessively difficult one to such an extent as to make it available to all accustomed to antiseptic operations. (4) It differs from those of Billroth and Wölfler inasmuch as it is far more completely a strictly intra-capsular operation. (5) Primary ligature of vessels is not required in more than two, three or four instances, and then only of veins which lie in the line of incision. (6) Bleeding is controlled by methodical compression of the wound not being directly operated on. This pressure is made either by the fingers of one or two assistants, or by compresses. The operating is done by quite small cuts with a knife or scissors, or by means of two dissecting forceps, or even the finger. Spurting arteries are tied, either when cut or later, and if bleeding is very free, the part is compressed and the operation proceeded with elsewhere. Compression is not to be made with absorbent sponges unless they are covered with gutta-percha tissue; very tight wood-wool tanpons may also be used. (8) The time consumed in compression is not wasted, as it is utilized by operating on another portion of the gland. (9) When the gland has been removed, compression should be continued for a short time, after which all bleeding vessels should be carefully tied. (10) The operation should be done with the head in the hanging position. In reply to the criticisms and objections raised by Sonnenburg, Rotter, Israel and Hahn, Wolff said that he had already done operations without tying a single vessel, and that ligatures were the exception and not the rule. He had also modified his operation since Rotter had seen him do it several years ago, and that in large goitres his method was easier instead of more difficult. He said Israel's opinion as to the small amount of bleeding in the usual method of operating by Kocher's procedure did not coincide with those of others.

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The Treatment of Malignant Disease.

In the *Annals of Surgery*, April, 1893, will be found three articles on the treatment of carcinoma and sarcoma. The first, "On the Value of Internal Medication in the Treatment of Malignant Disease," is by Jarvis S. Wright. He regards sarcoma and carcinoma as being local affections at their outset, and inclines to the belief that they are caused by some as yet unknown micro-organism. The author gave carbonate of lime in five and ten-grain doses in the tincture of calumbo before meals, and the bromide of arsenic, one-fortieth to one-tenth-grain doses, after meals, and says: "In many cases coming under the head of sarcoma there was quite a rapid tendency to cure, and this was generally permanent. Large deposits would not yield; but excision of the enlargement was often followed by a sure cure." In cancer he operates as soon as possible, and says: "Give the bromide of arsenic to all patients as soon as they come under your care, and continue the use of this remedy for a long time after the operation." He believes that the progress of the disease may be modified and its severity mitigated. Advanced cases are hopeless under all methods. The second article, "The Use and Place of Caustics in the Treatment of Cancer," is by Daniel Lewis. Caustics are inadmissible in mammary and uterine cancer, but find their appropriate place in the cutaneous form, except those of the mucous surface of the lip, the eyelids and all others which have involved a large surface, in which dangerous poisoning might result from absorption. If the disease is a small warty growth, Jenning's paste is advised. It is as follows:

℞. Hydrochlorate of cocaine 2
Caustic potash 12
Vaseline . . . . . 6 M.
Acetic acid must be at hand to limit its action.

In rodent ulcer Bougard's paste is recommended. It is as follows:

℞. Wheat flour . . . . . 60 grammes.
Starch . . . . . 60 "
Arsenic . . . . . 1 "
Cinnabar . . . . . 5 "
Sal ammoniac . . . . . 5 "
Corrosive sublimate . . . . . 5.50 centigramme.
Solution of chloride of zinc, at 52° F. . . . . 245 grammes.

A thick layer of this is spread on cotton and left in position twenty-four hours. Few cases require a second application.

The third article, on "The Domain of the Knife in the Treatment of Carcinoma," is by Nathan Jacobson. After discussing the value of operations in cancer affecting the various regions of the body, he concludes by saying that recent study of cancer only emphasizes its infectious character and primarily local origin. To effect its cure we must be able to reach beyond the affected area into healthy structure. To accomplish this with reasonable certainty the surgeon has but one agent, the knife.

The Extirpation of Carcinoma of the Rectum.

In *L'Union Médicale*, February 18, 1893, is a clinical lecture by Paul Reclus on the operative treatment of cancer of the rectum. From the therapeutic point of view, cancers of the rectum may be divided into two groups: Those which are

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small, mobile, involving only the intestinal walls, and without adherence to the adjoining structures; secondly, those which are voluminous, badly circumscribed, and having involved the surrounding organs and tissues. Radical operative measures are to be directed to the former class alone, while for the latter palliative treatment is advised. When the growth is low down it is readily removed, and even if incontinence is produced the patients are still satisfied with the relief and comfort afforded by the removal of the cancerous mass. Recurrence is frequent. Koenig gives six cures in twenty-nine operations. The author says he has had two. The operations of Bardenheuer, Terrier and Kraske are described, and a brilliant case of cure, by the author, by means of the latter operation detailed. He says that the operation has been brought into discredit by being done on unsuitable cases, and urges its restriction to localized tumors.

THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Duboisine in Nervous and Mental Diseases.

Mendel (*Neurol. Centralbl.*, February 1, 1893) speaks highly of this drug in insanity associated with great physical excitement, when the latter is not the result of delusions or hallucinations. The hypodermic injection of 0.0005 to 0.0008 grammes induces muscular relaxation in a few minutes. The drug does not seem to act as a pure hypnotic, since it does not produce sleep in melancholia, paranoia, etc., when the latter are unassociated with restlessness. Its somnifacient effect is probably due to the suppression of motor excitement.

The author has also employed duboisine in paralysis agitans with good results. The tremor subsides in a quarter of an hour after an injection of the drug, and the cessation lasts for several hours, allowing the patient to write legibly, to walk, or to sleep. In advanced cases of paralysis agitans duboisine sometimes produces a favorable and sometimes an unfavorable effect on the speech. Apart from this influence on the speech, two or three decimilligrammes of the drug may be given two or three times daily for long periods without bad results. The author rarely exceeds one milligramme for a dose. A dose of 0.2 milligrammes may produce dryness of the throat, dilation of the pupils, and some quickening of the pulse. Occasionally it induces vertigo and unsteady gait, which effects, the author believes, may be attributed to the action of the drug on the motor centres.

Belmondo (*Revue Gén. de Clin. et de Therap.*, February 8, 1893) has practiced 167 injections of duboisine upon thirty-two cases of insanity. He employed it in doses of ½ a milligramme to 1½ milligrammes. The latter, however, sometimes caused gastric disturbance—vomiting and anorexia. The sedative effects of duboisine were comparable to those of hyoscine. Its use was followed by a diminution of the motor and psychical disturbances. As a hypnotic the alkaloid acts similarly to chloral.

Mazzocchi and Antonini (*Riforma Medica*, November 15, 1892) have practiced more than 200 injections of duboisine on thirty insane patients in their asylum at Bergamo. The dose ranged from ½ to 2 milligrammes, and the patients

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represented all grades of excitement, from slight exaltation to violent mania. In no instance did the drug cause vertigo, vomiting or hallucination of sight, but it nearly always induced, in a few minutes, dilatation of the pupils, muscular relaxation, and a diminution of the pulse rate. In twenty cases it produced sleep in from fifteen to twenty minutes, and this lasted five or six hours. The drug does not seem to lose its effect even when given repeatedly over long periods. In other cases control experiments were instituted, atropine, morphine and water (to eliminate suggestion) being injected, but without result. In the majority of cases the intelligence improved, but in some the drug was without effect.

ALBERTONI (*Therapeutic Gazette*, May 15, 1892) has recently recorded three cases of hystero-epilepsy in which duboisine was employed successfully. The history of one of these is as follows: The patient, a girl of 23, had very frequent attacks, often three in an hour, which began with squint, loss of speech, semi-unconsciousness. The muscles became rigid, especially those of the back, causing opisthotonos; the pulse, arrested during the attacks, became rapid in the interval. After the usual remedies had failed, injections of duboisine in doses of .0004 gramme were employed. In half an hour after the first injection the girl went to sleep, and remained in this condition the whole night, and had only three attacks during the next day. Injections of .5 milligramme were given every evening for a few days more, when the convulsions ceased and general treatment removed the constitutional disturbance. The other two cases were similar. Albertoni, considering his own cases, and those of Samuely and Belmondo, believes that duboisine is a specific in hystero-epilepsy.

TOLYPYRIN.

This new remedy, which closely resembles antipyrin in its action, has been recently studied by PAUL GUTTMANN (*Berliner klin. Woch.*, March 13, 1893). It differs chemically from antipyrin in that one atom of hydrogen in the latter is replaced by the methyl group CH_3. It appears in the form of colorless crystals, having a bitter taste, soluble in ten parts of water, slightly in alcohol, and almost insoluble in ether. Its effect on febrile temperatures is quite marked; 4 grammes given in doses of 1 gramme hourly produced a fall of temperature varying from 2.7° F. to 6.3° F. The fall of temperature began after the lapse of an hour, and reached its maximum in five or six hours. When the administration was commenced at midday, the temperature often remained depressed for from twelve to eighteen hours. Sweating and a reduction in the pulse rate accompanied the fall of temperature. Its antipyretic action, all things considered, seems to be a little greater than antipyrin. It was also found that 3 grammes produced almost as much effect as 4 grammes.

The antipyretic action of the drug was tested in six cases of typhoid fever, five cases of pneumonia, two cases of facial erysipelas, scarlatina and phthisis, and one case of septicemia, otitis media, and gangrene of the scrotum, with high fever. In acute rheumatism 4-gramme doses of tolypyrin reduced the swelling and lessened the pain, its effect lasting from twenty-four to forty-eight hours. Like antipyrin, it has anodyne properties. In ten cases of headache it produced complete relief in six, and no distinct result in four. Of these four antipyrin produced relief in two. In one case of recent sciatica it had a very pronounced effect on the pain. The drug is eliminated in the urine. Guttmann believes that tolypyrin is equal to antipyrin in its antipyretic, antirheumatic and antineuralgic effects, and it is to be preferred to antipyrin on account of its lower price.

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Venesection in Thoracic Aneurism.

At a meeting of the Hunterian Society of London, Dr. G. Newton Pitt (*British Medical Journal*, April 8, 1893) read notes of nine cases of thoracic aneurism with or without aortic incompetence, in which venesection, more or less frequently repeated, had been followed by more or less permanent relief of the symptoms. In one case the patient was profoundly comatose, and on three occasions was restored to consciousness by venesection. He would advise venesection only as a remedy for acute symptoms, such as pain, cough and dyspnea, and not with a view of promoting consolidation of the aneurism by clot. He would treat thoracic aneurism by rest, recumbent position, iodide of potassium in gradually increasing doses, and with as limited an amount of fluid as was comfortable to the patient.

New Remedies in Gonorrhea.

Jadasson (*Deutsche medicinische Wochenschrift*, 1892, Nos. 38, 39) speaks of the value of ichthyol in gonorrhea in women as well as men. He obtained excellent results in thirty-seven cases of gonorrhea in females. In men, uncomplicated cases were the forms most favorably influenced. As he obtained such good results in specific urethritis, he was led to employ the remedy in gonorrheal catarrh of the cervix. The drug may be applied readily to the cervix, and later to the endometrium, with an ordinary Playfair's probe covered with wool; a 10-per-cent. ointment is sufficient. The probe may also be used for the urethra, employing a weaker preparation—from 1 to less than 10 per cent. In some cases it may be injected, or the urethra packed with gauze dipped in the ichthyol, and introduced through a urethral speculum.

Caspar (*Bèrliner klin. Woch.*, March 27, 1893) reports twelve cases of acute gonorrhea treated by an injection of a 1 to 2 per cent. solution of alumnol administered thrice daily. In seven of the cases a cure was effected at the end of first six weeks. In the other five cases the gonorrhea became chronic.

In eight cases of chronic gonorrhea the treatment consisted of a 1 to 2 per cent. alumnol solution applied by Guyon's method of instillation. One case was cured after four instillations. In the other seven the secretion was unaffected or worse after ten instillations. He believes that in acute gonorrhea alumnol is neither inferior nor superior to other remedies in common use, and that in chronic gonorrhea it is inferior to nitrate of silver.

In twelve cases of simple chronic urethritis alumnol proved inferior to nitrate of silver. Caspar agrees with Chotzen that the injections do not cause pain and never lead to cystitis. In two cases of chancroid alumnol effected a rapid cure.

Gravtzoff, of Sebastopol (*Médit. Probat. klin. Morsk. Slomiki*, 1892, No. 9), has obtained excellent results with salol in gonorrhea. He employs the drug in doses of one gramme to one gramme and a half, which he repeats three or four times daily, and claims that he obtains therapeutic effects in from four to five days.

In subacute cases he associates cubebs with the salol, administering the two in capsules. In addition to the internal medication he employs the following solution of salol:

℞	Salol	10 grammes.
	Pul. acaciæ	5 grammes.
	Aquæ destil.	2000 grammes.

The injection should be repeated three or four times daily.

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The Treatment of Cholelithiasis.

Strizower (*Ærztl. Praktiker*, No. 7, 1893) calls attention to the value of salicylate of sodium and salol in this condition. He states that with the aid of these drugs he has been able to hasten the expulsion of gall stones and to prevent their development. He no longer prescribes Karlsbad water, and prefers antipyrin as an analgesic to opium in cholelithiasis. He administers ten grains of salol or salicylate of sodium three or four times daily, in the intervals between the attacks of colic, and ten grains of antipyrin at the beginning of the attack. Under this plan of treatment the depressing effects of the morphine injections are avoided, the attacks grow less frequent, and finally disappear entirely.

Ethyl Chloride as a Local Anesthetic.

Gans (*Therap. Monatshefte*, March 18, 1893) speaks of the value of this drug as a local anesthetic. It is produced by the action of hydrochloric acid on alcohol, and since it boils at a temperature of 50° F., he recommends that it be kept in glass tubes large enough to hold two and one-half drachms. One end of the tube is drawn to a point, and when this is broken the warmth of the hand is sufficient to expel a fine stream of ethyl chloride. One tube is usually sufficient for an application. Obstinate cases of neuralgia, lumbago, migraine and incipient gout are reported as having been speedily relieved by one or more applications. The skin is first reddened and then turns perfectly white, a snowy covering forming on its surface. The odor is not disagreeable, and no unpleasant symptoms were observed. In a rabbit exposed to frequent successive sprayings the skin showed no pathological changes, and a thermometer introduced subcutaneously marked a diminution of 60° to 64° F.

Scopalamine Hydrochlorate; A New Mydriatic.

This alkaloid is obtained from the root of *Scopolia atropoides*, and, like atropine and hyoscine, belongs to the group of tropeines. The results of Rahlmann's study of this drug are reported in the *Klinische Monatsblätter f. Augenheilkunde* for February, 1893. Previous experiments by Kobert had shown that scopalamine had an opposite physiological action to atropine in that it did not stimulate the cerebral cortex, but paralyzed it; and did not accelerate the pulse, but retarded it. According to Rahlmann, scopalamine as a mydriatic and antiphlogistic is superior to atropine and all other tropeines. In its mydriatic strength it resembles hyoscine, but it does not possess the disadvantages of that drug. Unlike atropine, it does not disturb the appetite, nor, except in very large doses, does it cause dryness of the throat; it does not produce nervous restlessness, flushing of the face, or quickening of the pulse.

The remedy is superior to atropine in influencing pericorneal injections and pannus, and is of special advantage in suppurative inflammations of the anterior section of the eyeball. In five cases it caused a steady diminution of an hypopyon. It does not affect intra-ocular pressure, and may, therefore, be employed instead of atropine when the intra-ocular pressure is increased. For this reason the drug is of great value in inflammatory affections of glaucomatous eyes.

Hydrochlorate of scopalamine is five times as powerful as atropine, and may be employed in 1.10 to 1.5 per cent. solutions. The duration of the effect is about the same as atropine. It acts best in divided doses.

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Pental.

C. G. Velez (*Rev. de Med. y Cir. Pract.*, February 7, and *Brit. Med. Journal*) has used pental as an anesthetic in 108 cases (mostly dental) with perfectly satisfactory results. In many cases, where it was necessary to keep the patient anesthetised for a considerable time, he was allowed to regain consciousness and then once more placed under the influence of pental; in half a minute narcosis was complete. In one case pental was thus administered three times in thirty minutes, and two hours afterward the patient, a man aged 28, was able to walk home, the only after-effect observed being excessive drowsiness during the remainder of the day. Velez thinks pental may with advantage replace chloroform and ether in many operations of short duration. Fifteen centigrammes given on a mask filled with coarse wool will induce narcosis in one minute. Instead of losing its effect, the drug seems to act better on the same individual at each successive application. The pulse is at first accelerated, but recovers its normal condition in a few seconds. During unconsciousness the patient sleeps quietly, the face retaining its natural color, and the eyes being open and fixed. In some cases insensibility is absolute, but, as a rule, consciousness is not altogether abolished. The patient awakes quietly, and no disagreeable after-effects are observed. Velez adds that patients will take pental repeatedly without the slightest repugnance. Pental, being readily inflammable, should never be used at night.

OBSTETRICS.

UNDER THE CHARGE OF
BARTON COOKE HIRST, M.D.,
ASSISTED BY
RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,
FRANK W. TALLEY, M.D.

Indications for Cæsarean Section.

Murray, in the *American Journal of Obstetrics*, April, 1893, draws the following conclusions in regard to the performance of Cæsarean section:

(1) Cæsarean section should be done always where the conjugata vera is below two and three-quarters inches.

(2) It should be done in the Roberts or Nagele pelvis, with marked deformity, or where there is fixation of one or both sacro-iliac synchondroses from diseases, cases in which pubiotomy would be ineffective.

(3) It is the best operation with diameters even larger than two and three-quarters inches, when the child's head is large, and could not probably pass with a living child if pubiotomy were done.

(4) Where tumors or exostoses are present, the Cæsarean section or Porro operation is the best.

(5) In cases of cancer of the cervix, it should be chosen rather than pubiotomy, and should be done before labor sets in, so that no sepsis results.

(6) The size of the child's head, in moderate contractions at the superior strait, will oftentimes be the determining factor as to whether an elective Cæsarean section or a pubiotomy be the best operation.

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Puerperal Tetanus.

Irwin (*New York Medical Journal*, September 17, 1892) gives the notes of a case of puerperal tetanus. The patient was a 17-year-old I-para, who had had a normal labor without injury of any kind. Thirty minutes after her delivery she had an attack of weakness with slight opisthotonos, which lasted forty minutes. Eleven days after she had another attack, attended with trismus and high fever. There was no albumin in her urine. Similar attacks occurred with every movement for a period of sixteen days, with a continuous fever and unhealthy appearance. She then improved, and finally recovered. The taking of nourishment was rendered difficult by the trismus. Morphia and chloral had the best influence in controlling the attacks.

Concerning the Premature Separation of the Placenta.

Steinheil (*Thèse de Paris*, 1892) has collected from the literature thirteen cases of premature separation of the placenta. In eleven of these cases there was associated with the separation of the placenta albuminuria occurring at the same time. In two cases of his own observation he refers the cause to abnormally short cords. In one case the umbilical cord was wound about the foot of the child. In the other case the cord was but 35 cm. long.

In the eleven cases with accompanying albuminuria, three of the mothers died. In the two cases of abnormally short cord both mothers died. In all the cases the conceived products died.

Concerning treatment, he refers to hot douches, tampons and rupture of the membranes. Tamponade is unsafe in its results, while from the rupture of the membranes the entrance of uterine contractions and the subsidence of the hemorrhage is to be expected.

Electricity in Obstetrics.

In the *New York Medical Record*, Vol. XLII, No. 26, Ludlow speaks of the great value of the faradic current in promoting uterine contraction, facilitating labor and checking hemorrhage. The positive pole was applied to the sacro-lumbar region, and the negative to the abdomen. Sponge electrodes are convenient, and should be so placed that the current does not pass through the head of the child. Many prefer the hand to either a sponge or metal electrode. The cases in which the treatment was of advantage, include retention of the placenta, post-partum hemorrhage and the use of the forceps when the mother's strength failed. The results obtained were so uniformly favorable that the author strongly commends this method of treatment.

Retention of the Placenta through a Decidual Sarcoma of the Placenta.

Blanc (*Revue Obstetrique et Gynécologie*, February, 1892) reports the following case: A II-para, just having aborted at the fifth month, was sent to the Obstetrical Clinic at Lyons on the third day after her abortion. The midwife had torn off the cord in attempts at extraction. The vagina was empty, and the os uteri closed. Two days after her entrance into the hospital the placenta was manually removed. For the most part it appeared healthy. In its middle was a piece of tissue 1 cm. thick, 2½ cm. long and 2 cm. broad, of homogeneous form,

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and resembling so closely fresh uterine tissue that it was supposed at first that the uterus had been injured by the forcible attempts at separation. The microscopical examination showed it to be serotina with manifold changes; the cells were long and flattened, without intervening substance, the protoplasm granular, and often the cells possessed many nuclei. The diagnosis was clearly decidual sarcoma, as described by Chiari and Sänger.

HYDROCEPHALUS; PLACENTA PREVIA.

HÖUCK (*Centrlbl. f. Gynak.*, No. 13, 1893) describes these complications occurring in a primipara: Four weeks before labor flooding began, and this was repeated two weeks later. To check the hemorrhage the patient was kept in bed and the tampon employed. On the day before delivery chills developed; the temperature rose to 100.8°, and the pulse to 100. The diagnosis of tetanus uteri and hydrocephalus was made by abdominal palpation, and digital examination detected a central placenta previa. The patient was anesthetized, combined version performed, and the foot brought down. It was found necessary to perforate the head. After delivery moderate bleeding occurred from uterine atony. The patient rallied quickly from the effects of the anesthesia, and save a slight laceration of the perineum the soft parts sustained no damage. Soon, however, severe flooding ensued, and notwithstanding the use of the tampon and injections of saline solutions the patient died an hour after delivery.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

PARAMETRITIC ABSCESS IN A GIRL TWELVE YEARS OLD.

CRAMER (*Deutsche med. Wochenschrift*, 1892, No. 33) reports a case in which a hard fall, on the side, was followed by intense abdominal pain and hyperpyrexia eighteen days later. There was great pain upon pressure along the course of the descending colon and cecum. General symptoms of peritonitis were absent. Large doses of opiates failed to give relief, and application of blisters and poultices seemed to increase the painful paroxysms. Vaginal and rectal examinations under anesthesia showed the presence of a fluctuating elastic tumor, occupying the space between the vagina and the rectum, and compressing the bowel. Puncture of this mass, through the vagina, resulted in the escape of three-eighths of a liter of foul pus. A drainage tube was introduced, but came out next day, and this was followed by a return of fever and colic. Another puncture was made and a teacupful of pus evacuated. After this the pus continued to drain away for some days, and the patient gradually convalesced.

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Oöphorectomy in Diseases of the Nervous System.

Mary A. Dixon-Jones (*Medical and Surgical Reporter*, May 27, 1893) reiterates a statement made five years ago to the effect that she would not remove healthy or normal ovaries for dysmenorrhea or any suffering in the region of the ovaries; nor would she remove them for epilepsy nor for mental nor for neurotic disease, even if failure had followed long trials of tentative measures. Reference is made to a number of cases reported by physicians in this country and Europe, in which epilepsy, hystero-epilepsy, insanity and various forms of reflex irritation were treated unsuccessfully by drugs, and after the discovery and removal of diseased appendages the reflex irritation disappeared. The statement is made that it is often impossible to detect disease by the eye alone in the removed ovaries, and a microscopical examination is necessary.

The Relation Between Uterine Disturbances and some of the Insanities.

C. C. Hersman (*American Gynecological Journal*, January, 1893) traces the relationship between the pelvic organs and the sympathetic nervous system, and comments upon the influence of the nervous system upon the functions of the sexual apparatus. He states that disorders of the pelvic organs frequently lead to insanity, especially in women of a neurotic temperament. He finds that about 10 per cent. of the admissions to certain insane hospitals during a given year gave a history of uterine disease as a cause of insanity. Among the causes given were child-birth, dysmenorrhea, menopause, menstruation, mental derangements, pregnancy, puberty, puerperal causes and uterine disease. He alludes to a case of insanity with fungoid endometritis and metrorrhagia which was treated by dilatation and curetting, with complete recovery from the uterine disorder and mental trouble.

Treatment of Intestinal Obstruction After Abdominal Operation.

The *American Gynecological Journal* of January, 1893, abstracts an article by Dr. Klotz (*Centrl. f. Gynakol.*) in which it is stated that he had thirty-seven cases of intestinal obstruction following operations upon 569 patients. The occurrence of this condition is attributed by the author to the action of strong antiseptics and the practice of cleansing the peritoneum, whereby the serous membrane is damaged and adhesions are produced. Recently he has omitted antiseptics and the cleansing of the peritoneal cavity, and has had fewer cases of obstruction. Secondary operations soon after laparotomy have proven the intestinal adhesions to be weak enough to be broken by strong peristaltic action, and Klotz therefore recommends the administration of two ounces of castor oil by means of an esophageal tube. This should be given as soon as the first symptoms of obstruction appear, the stomach having been previously irrigated. If the oil is retained, energetic contractions are rapidly set up in the intestinal wall. This plan of treatment proved successful in every case in which it was tried promptly after the appearance of the earliest symptoms. Vomiting ceased immediately, flatus was passed in a couple of hours, and constipation was relieved six or eight hours later.

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PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

RHOPHALOCEPHALUS CARCINOMATOSUS.

A. KOROTNEFF (*Centralbl. f. Bact. u. Parasiteuk*, Bd. XIII, No. 11–12, March 23, 1893). The principal studies made by this investigator were from a carcinoma labii. The full developed parasite, which from its peculiarities he calls by the above name, has a cestoid-like appearance, possessing an expanded head and an elongated body. In the head there is a nucleus—or, rather, a spot—which is of no definite shape. It colors, by Biondi's stain, a brick-red, while the remainder of the parasite is orange. The body is sharply circumscribed, without pseudopods, and consists of a fine granular protoplasm. The entire appearance is like that of a *grugarina*.

In the surroundings of the fully developed parasite numerous young forms are found. These are elliptical or club-shaped, with a coarsely granular spot in the centre, and are enclosed in the cancer cell. The cells occupied by the young parasites become larger, and develop a spherical form. They are subject to the

pressure of the organism within, and neighboring cells from without, and hence alter their shape very much. As the young parasites have the power to be divided, they increase in number, affect contiguous cells, and so set up the formation of epithelial pearls. He believes that in the centre of every pearl one or more parasites are to be found. The process causes changes in the central cells, which degenerate and allow the parasites to swarm in the detritus. The development is briefly:

(1) Coccidia-like bodies, which develop in and escape from the perfect individual.

(2) Within these *zoöids* develop. These are generally oval and pointed.

(3) The zoöids are not the only derivations of the coccidia, but in them certain bean-shaped or falsiform bodies also form. These he calls *sporozoids*. The sporozoids consist of hyaline vesicles containing protoplasm with untingable nuclei. These collections of protoplasm in the cysts are separated from them, and from the central axis of the sporozoid, and retain their position by the aid of hyaline threads which attach them to the wall of the cyst or vesicle. In general terms, one may say a sporozoid looks like a zoöid which has developed a cyst.

(4) After escaping from the coccidium and its entrance into a carcinoma cell, the zoöid either forms a grugarina or an encapsulated coccidium.

The sporozoid is ameboid, and enters the cell by its ameboid movement, pro-

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jecting pseudopods, etc. The ameba also grow rapidly in spores which they make for themselves between the cells. When such a spore has attained considerable size, the ameba appears to be encapsulated. There is, however, no capsule, the walls of the spore being simply the protoplasm of neighboring cells. In the interior of the large ameba zoöids and sporozoids by and by develop, sometimes several such bodies in one ameba. These zoöids always develop into coccidia, and the sporozoids into ameba.

The rhophalocephalus is thought to be a form intermediate between coccidia and gregarina.

In discussing the etiology, he calls attention to the fact that the cells occupied by the parasites increase in size, but not in number. The same thing is true of the neighboring cells, hence the carcinoma does not grow through the influence of the parasite. The cancer cells grow where the parasites are fewest. The regressive changes in the cancer are due to the presence of the parasite, and hence the malignancy. A carcinoma without parasites is as harmless as other epithelial growths, like hairs, nails, etc. No explanation is offered for the origin of the cancer. The cachexia is thought to be due to vital products of the ameba.

Contributions to the Study of Tetanus.

Buschke and Oergel (*Deutsche medicinische Wochenschrift*, February 16, 1893) studied a case of tetanus occurring in a 9-year-old boy with fracture of the leg, in a thorough and practical manner, as follows: Material from the seat of fracture, being removed by a sharp curette, was used to inoculate two gray mice. In two days both animals developed the characteristic symptoms of tetanus. Pus from the point of inoculation was inoculated into two others (one house-mouse and one "brandmouse"). Both animals died, one in ten, the other in fourteen hours, from tetanus.

Bacteriological examination of the organs and blood of these animals discovered no microörganisms, and no alterations of the organs. Of many animals thus examined no changes were discovered, except that in one guinea-pig the blood from the heart contained numerous fat drops.

The pus from the inoculated mice was also used to make cultures, which were successful, and in an atmosphere of hydrogen the observers succeeded in cultivating the bacilli in bouillon.

The sweat and saliva were collected from the patient and used to inoculate mice, but gave a negative result. Before death 60 c. c. of blood were collected by venesection, and allowed to stand on ice for twenty-four hours. By the end of this time the clot had separated and left a clear serum above. With 1 cm. of the clear serum a guinea-pig was injected, and at the same time a considerable mass of the coagulum was introduced under the skin of another. Both these animals died, with more or less well-developed tetanic symptoms. The result obtained from the clot is thought to be due to the serum which it contained.

Fragments of the liver, spleen and spinal cord were also secured from the cadaver, and each crushed in a quantity of physiological salt solution and glycerine, which was allowed to stand on ice for forty-eight hours. The contained albumins were precipitated with absolute alcohol, caught in a filter, re-dissolved in glycerine-salt-solution, re-precipitated, re-collected, and again re-dissolved. There were now three solutions of 110–150 ccm. of liquid, which were evaporated at a low temperature to 15–20 ccm.

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Three white mice were subcutaneously inoculated with 0.5 ccm. of the concentrated solutions of the toxalbumin, one from each organ to be studied.

The mouse representing the liver extract, showed exquisite symptoms of tetanus immediately, the other in five minutes after the injection. In fifteen minutes all three were dead. The autopsy on these animals showed fat droplets in the blood.

Three rabbits were each subcutaneously injected with 1 cmm. No symptoms were observed. The animal representing the liver extract died in thirteen days, the others still live.

In order to prove whether the tox-albumin acted directly upon the nerve centres, some of the spinal-cord extract was injected beneath the dura of a rabbit. The animal developed no symptoms.

In order to determine how long the poisonous qualities persisted, some of the serum, and the solutions containing the tox-albuminus, were allowed to stand for three weeks, then injected into animals. A white mouse, which had received 1 cmm. of the serum, died in twenty-four hours, without any signs of tetanus, and without fat droplets in the blood. A second mouse, which received 0.5 cmm. of the serum, remains living. A third mouse received 0.5 cmm. of the tox-albumin solution and died with typical tetanic symptoms in twenty hours. In the blood many fat droplets were found. From this it is seen that the serum loses its power in about eighteen days, while the tox-albumin solutions continue longer.

In order to discover the effect on the lower animals, a two-weeks' old pure culture of tetanus bacilli was introduced into a frog. In three weeks stiffness of the hind legs was observed, and soon the spinal column was observed to become kypho-scoliotic. On being touched, general tetanic convulsions developed.

In order to ascertain just in what manner the tox-albumin acts, the following experiments were conducted:

(1) The tetanic frog was curarized, and immediately the symptoms disappeared.

(2) The left sciatic was cut, whereupon that extremity, which had previously been stiff and convulsed, hung lax and flaccid, only occasional to and fro contractions being observed. When curarized the convulsions ceased.

(3) The tetanic frog was not affected by removal of the brain.

(4) The lower part of the spinal cord was destroyed by a needle. The tetanus ceased in the lower part of the body, except for occasional gentle contractions, while it persisted above.

From these experiments it seems proven that the tox-albumin acts on the spinal cord for the production of its symptoms.

The Tænia Echinococcus.

Dr. Arthur Müller (*Münchener med. Wochenschrift*, March 28, 1893) reports studies of numerous cases of echinococcus made in 1890, but delayed in publication. The results of his investigation are as follows: Two forms of tænia echinococcus appear to exist, one being characterized by thick hooks and deficiency egg-masses in the terminal segments of old individuals. This form is of wide geographical distribution, and in its early stages appears only as echinococcus cysticus.

The second form possesses delicate hooks, and shows a club-shaped mass of eggs in the terminal segment. It only occurs in the neighborhood of southern Germany. The cystocercus form occurs as echinococcus multilocularis—perhaps less often as echinococcus cysticus.

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Tuberculosis of the Esophagus.

Simon Flexner, in the *Johns Hopkins Bulletin*, January and February, 1893, reports a case of tuberculosis affecting this unusual part of the body. The patient died at the hospital after operation for empyema. The anatomical diagnosis was as follows:

Tuberculosis of lungs, glands of neck and bronchial glands; tuberculous pleurisy; pyo-pneumo-thorax; gangrene of pleura; *perforating tuberculous ulcer of esophagus;* recent intestinal tuberculosis. On section of the esophagus, there were found in the anterior wall, somewhat to the left of the middle line, two ulcers, about equal in size and measurements, 7, 5 and 4 mm. The more superficial one reached the muscular coat, but did not penetrate beyond, while the other has perforated the esophagus, and communicated by a small opening with the left pleural cavity. The edges and bases of the ulcers are smooth. In the ulcers some living maggots were found. Tubercle bacilli were found in the tubercles surrounding the ulcers.

Lympho-Sarcomatosis.

Kundrat (*Wiener klinische Wochenschrift*, March 23, 1893) says that the lympho-sarcoma is characterized by the reticulated ground tissue, with enclosed lymphoid cells. It is emphasized that this tissue never exactly resembles the normal reticulated lymphoid tissue, always being distinguished by irregular arrangement of the stroma and weaker or stronger (nerve fibrous) development of the same, and a size and profuseness of cells which differs markedly from the normal type.

Two forms, a medullary and fibrous, are given, differing from each other in the relative amounts of cells and fibres which they contain.

The lympho-sarcoma shows no disposition to undergo a retrograde metamorphosis, fatty and anemic changes being rare.

These tumors are in intimate relation with the lymphatic system, and the writer knows of no case originating elsewhere.

This tumor is easily separated from leukemic and pseudo-leukemic tumors by its tendency to infiltrate the surrounding tissues, embracing whatever organs are in its neighborhood, while the lympha-denomata, though they may attain large dimensions and frequently run together, never are other than discrete circumscribed growths.

The growth spreads in two ways: (1) By extension from lymph follicle to lymph follicle or gland; (2) by infiltration of neighboring tissues.

This form of sarcoma seems never to break into the bloodvessels, but, instead, compromises and closes them. Even the large veins, when surrounded by lympho-sarcoma, are only narrowed and obstruded; and when venous stasis occurs, it is generally through secondary thrombosis.

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DERMATOLOGY

UNDER THE CHARGE OF

LOUIS A. DUHRING, M.D.,

ASSISTED BY

M. B. HARTZELL, M.D.

The Pathogenesis of Burns.

In "A Contribution to the Pathogenesis of Burns" (*Ergangungshefte zum Archiv f. Dermatologie und Syphilis*, I Heft, 1893), Reiss expresses the opinion that the clinical phenomena observed in cases of severe and fatal burn are due to the absorption of pyridin and its compounds, which are produced by the action of heat upon the skin and underlying tissues. Chemical analysis shows the presence of these substances in the urine of patients suffering from burn; and in animals poisoned by it experimentally anuria, somnolency and vomiting are produced, symptoms often observed in extensive burns.

The Therapy of Lepra.

Danielssen reports (*Ergänzungshefte zum Archiv f. Dermatologie u. Syphilis*, I Heft) thirteen cases of leprosy treated by the method claimed by Unna to have been curative in several cases. This treatment, which consists in the external and internal employment of chrysarobin, salicylic acid and creosote, together with the internal administration of ichthyol, was employed in the tubercular, anesthetic and mixed forms of the disease, but without obtaining the result claimed for it by its author. Although some of the nodules were absorbed, new lesions arose to take their place, and no permanent improvement followed the treatment. As the writer points out, there are many methods of treatment by which temporary disappearance of the cutaneous lesions may be brought about without, however, producing a real cure. Trial was also made of hydroxylamin externally, of europhen by hypodermic injection, and of aristol, hypodermically and externally, without favorable result.

A Case of Mycosis Fungoides, with Palatal, Lingual and Laryngeal Lesions; Autopsy.

MM. Hallopeau and Jeanselme presented to the Société de Dermatologie et de Syphiligraphie (*ibid.*) further observations upon a case of this rare disease, presented at a former *séance*. The chief interest of the case lay in the great number and dissemination of the lesions. These occurred not only as circumscribed tumors, but as sheet-like infiltrations, and they were found upon the palate, the base of the tongue and in the larynx. The lymphatics of the neck, axillæ and groin were also invaded.

The autopsy disclosed sclerosis of the spleen, the presence of miliary nodules in the liver, and a considerable infiltration of small round cells between the uriniferous tubules of the kidney. The authors are of the opinion that the lesions found in these organs were due to a secondary infection by staphylococci.

Cultures made from a tumor of the face revealed the presence of two varieties of micro organism: (1) Abundant colonies of staphylococcus aureus; (2) some scanty colonies of bacterium coli commune.

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A Contribution to the Histology of Eczema Seborrhoicum.

From a histological, pathological and clinical study of eczema seborrhoicum, as seen upon the chest (*Journal Cutaneous and Genito-Urinary Diseases*, June, 1893), Elliot concludes that the process is:

(1) Not a seborrhea, but an inflammation of the skin, in which the presence of a fatty hypersecretion, often seen, is not an integral but a secondary or accidental symptom.

(2) That it is a part of the process termed eczema seborrhoicum by Unna.

(3) That this process can justly be considered as a form of cutaneous catarrh, probably due to the local action of certain micro-organisms—a form of parasitic eczema.

Impetigo of Infants.

Leroux, in a communication to the Academie de Medicine de Paris (*Annales de Dermatol. et de Syphiligraphie*, No. 3, 1893), states that he was able to establish the fact of contagion in 220 cases out of a total of 750. In 120 inoculations he obtained 79 positive results, in some cases being able to continue the inoculations up to the sixth series. In the lesions of impetigo he found several varieties of staphylococcus pyogenes and streptococci. In experimental impetigo produced by inoculation he found diplococci, streptococci, but no staphylococci. Cultures of streptococci obtained from the lesions of impetigo, inoculated upon children have reproduced the impetigo, in the vesicles of which streptococci were also found. The author believes impetigo to be due to a special microbe, "the streptococcus of impetigo," the staphylococci found being the result of a secondary infection.

Hydrargyria from the External Use of Mercury.

In a communication to the Sociéte Francaise de Dermatologie et de Syphiligraphie (*Annales de Dermatol. et de Syphiligraphie*, No. 3, 1893), Fournier reports a case in which an eruption occurred over the entire cutaneous surface as a result of the application of mercurials. The patient was a young woman, 26 years of age, who in infancy had had frequent attacks of inflammation of the eyes, otorrhea, and, later in life, several attacks of eczema. A few weeks before admission to the hospital a solution of sublimate had been used for a conjunctivitis of the left eye. From the second day of this treatment an eruption appeared upon the face, accompanied by intense itching, which rapidly spread over the entire face. This eruption, from its bright red color and the considerable swelling which accompanied it, bore a close resemblance to erysipelas, but there were no constitutional symptoms. At this time a calomel ointment was prescribed for the eyes, and one of unknown composition for the face. Within twenty-four hours crusting began upon the face, and two days later itching appeared around the anus and vulva, for which the patient applied an ointment of white precipitate which only increased the pruritis. Some days later a bright red eruption occurred over the whole body, accompanied by intense itching. This eruption remained dry except in the inguinal region, the popliteal spaces, the axillæ and the bend of the elbow; in these localities oozing was quite abundant. The application of glycerine of starch and starch poultices, and the internal administration of iodide of potassium, caused rapid improvement. An analysis of the urine showed the presence of small quantities of mercury.

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THE INTERNAL TREATMENT OF LUPUS ERYTHEMATOSUS WITH PHOSPHORUS.

BULKLEY calls attention (*American Journal of the Medical Sciences*, April, 1893) to the good results to be obtained in lupus erythematosus from the internal administration of phosphorus. Instead of the oily solutions and pills in which it is commonly administered, he prefers the following solution:

℞. Phosphorus . . . . . gr. vi.
Absolute alcohol . . . . . ʒxxx.

To be dissolved, with the aid of heat and agitation, and then mixed, while still warm, with the following mixture, also warmed:

Glycerin . . . . . ʒix ss.
Alcohol . . . . . ʒi ss.
Essence peppermint . . . . . ʒss.

Each drachm of this solution represents one-twentieth grain of phosphorus. Of this mixture the initial dose may be fifteen drops in water, which is to be gradually increased until forty to forty-five drops are taken three times a day. If the mixture agrees it may be given in still larger doses, carefully watching the patient. Treated in this manner, the disease soon begins to show improvement, which is progressive.

THE TREATMENT OF RINGWORM OF THE SCALP.

EDDOWES (*British Medical Journal*, April 15, 1893) recommends the following method of treatment as being efficacious in this intractable disease:

During the first week a sulphur ointment is applied daily, the hair having first been cut short. The scalp is to be washed two or three times during the week with soap and water, and a cap is to be worn continuously.

In the second week an ointment containing twenty-five grains each of chrysarobin and ichthyol, and ten grains of salicylic acid, is to be thoroughly rubbed into a few of the patches, the sulphur ointment being applied to the rest of the scalp. After each application the ointment is covered with oiled silk or gutta-percha tissue, kept in place by a skull-cap. If this chrysarobin ointment is well borne, the area to which it is applied is increased daily until it is used over the entire diseased scalp, but never for more than four days in succession. At the end of four days, or, if considerable irritation arises, sooner, the chrysarobin ointment is suspended, and the sulphur used in its place. At the end of the second week the scalp should be thoroughly oiled at night, and washed next morning with soap and water. The combined use of these two ointments is to be continued in the above manner until a cure has been obtained.

Points of importance are: (1) Thorough cleansing of the scalp before using the chrysarobin; (2) removal of secretion and scales with the sulphur ointment before reapplying the chrysarobin ointment, which latter should only be done after he skin has returned to its normal color.

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MISCELLANEOUS.

THE PAN-AMERICAN MEDICAL CONGRESS.

Section of General Medicine.

This assemblage promises to be one of the most important events that has occurred in the history of medicine in the Americas. Its success is assured by the large number of valuable papers already promised. The Section on General Medicine, which is one of the most important that has been created, bids fair to be one of the most successful in the entire congress, and already many valuable contributions are in process of preparation, and will be read at the meeting in September. It is hoped, with the hearty co-operation of all physicians living not only in North but also in South and Central America, that the work in this section will be memorable; and each physician living on this continent is requested to join this most important section, and to prepare a contribution to be read before that body. It is especially requested that those intending to join this section or to read papers shall at once send their names, with titles of papers, to the Secretary, Dr. Judson Daland, No. 319 South Eighteenth Street, Philadelphia, Pa., so that they may be noted on the calendar and given their appropriate places.

Section on Therapeutics.

It is the earnest desire of the officers of the Section on Therapeutics of the Pan-American Medical Congress that both specialists and general practitioners should contribute articles to its proceedings.

Gentlemen who desire to read papers at this meeting should notify Dr. H. A. Hare at once of their intention, and should send him by July 10 at the latest an abstract of their paper in order that it may be translated into the three official languages of the Congress and published in the programme. The importance of this section, and the interesting papers which have already been promised, give assurance of a very successful meeting.

Section on Diseases of Children.

The organization of this section is complete, and the work of arranging a programme is well advanced. Numerous valuable papers have been promised, and the success of the meeting is assured. Physicians interested in diseases of children are cordially invited to attend these meetings, which give promise of great interest both to the

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specialist and general practitioner. Any American physician desiring to read a paper will please communicate at once with the Secretary, who will be pleased to furnish all needed information.

Executive President: Dr. John M. Keating, Colorado Springs, Col.

Secretaries: Dr. F. M. Crandall (English-speaking), No. 113 W. Ninety-fifth Street, New York, N. Y.; Dr. Damaso Lainé (Spanish-speaking), Media, Pa.

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AMERICAN ELECTRO-THERAPEUTIC ASSOCIATION.

At the second annual meeting of the American Electro-Therapeutic Association, the following officers were elected for the ensuing year:

President, Dr. Augustin H. Goelet, No. 531 W. Fifty-seventh Street, New York; *First Vice-President*, Dr. Wm. F. Hutchinson, Providence, R. I.; *Second Vice-President*, Dr. W. J. Herdman, Ann Arbor, Mich.; *Secretary*, Dr. Margaret A. Cleaves, No. 68 Madison Avenue, New York; *Treasurer*, R. J. Nunn, No. 119 York Street, Savannah, Ga.

The third annual meeting will be held in Chicago, on September 12, 13 and 14, 1893. A cordial invitation is extended to all members of the profession interested in electro-therapeutics. Arrangements for special rates on railways and at hotels are in progress.

The Committee of Arrangements will be obliged if those who intend being present at the meeting will send their names, the class and amount of accommodation required, titles of papers to be presented, applications for membership, etc., at as early a date as possible.

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Accommodation should be secured early on account of the crowded condition of the hotels because of the World's Fair. All communications should be addressed to the Secretary.

The Committee will be glad to furnish any information in regard to the meeting upon application.

Committee of Arrangements—Franklin H. Martin, Chairman; S. C. Stanton, Secretary.

CORRESPONDENCE.

DR. WOOD'S paper in the last issue of the MAGAZINE has elicited the following response:

WALNUT LODGE HOSPITAL, HARTFORD, CONN.,
May 30, 1893.

MY DEAR DR. WOOD: Your lecture on "Chronic Contracted Kidney," in the June number of the MAGAZINE, is so fully sustained by my experience that I write to thank you for it. Several years ago I studied the urine of over one hundred inebriates. The first two weeks of study and examination of each case revealed a class of alarming symptoms, viz., albumin, casts and sugar in the urine and other indications of hopeless organic disease. In two months, or less in some cases none of these symptoms remained. This experience followed so constantly that I gave up all study in this direction. Within the past five years I have used the Turkish bath very freely, and find that all the symptoms referred to disappear in a few days. Physicians not infrequently come who have found casts and albumin in their urine, and who are sure that they have serious organic disease, but after a few Turkish baths these symptoms entirely disappear.

Again thanking you, believe me, yours truly,

T. D. CROTHERS.

BOOK NOTICES.

THE READY-REFERENCE HANDBOOK OF DISEASES OF THE SKIN. By GEORGE THOMAS JACKSON, M.D., Chief of Clinic and Instructor in Dermatology, College of Physicians and Surgeons, New York; Professor of Dermatology in the Woman's Medical College of the New York Infirmary, etc., etc.

This recent addition to the ever-growing number of text-books upon diseases of the skin consists of two parts, the first of which is devoted to a brief consideration of the more important points in the anatomy

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and physiology of the skin, some general considerations upon diagnosis, and notes upon therapeutics, this last including a brief account of some of the newest remedies brought forward for the treatment of diseases of the skin; the second part is concerned with the various cutaneous affections, their symptomatology, diagnosis, and treatment.

In taking up the various diseases no system of classification is followed, but they are arranged in alphabetical order, a method which seems recently to be growing in favor with authors of text-books upon dermatology. While recognizing that this plan has something to commend it, facilitating reference to the various subjects, yet we are not quite sure that it is best to attempt no classification because no perfect system has yet been devised. Surely, something of clearness in comprehending the subject is to be gained by some kind of classification, imperfect though it may be.

As was to have been expected from the author's large experience, the clinical features of diseases of the skin are well portrayed, and the directions as to treatment are clearly and intelligently given, and fully abreast of modern knowledge.

A valuable feature of the book is the large number of foreign synonyms given—indeed, this feature, together with the alphabetical arrangement adopted, fairly entitles it to be considered a dictionary of dermatology. The illustrations, fifty in number, found throughout the book, are for the most part well selected, and above the average in execution.

An appendix of twelve pages, in which is given a large number of approved formulæ for lotions, baths, ointments, etc., concludes the volume.

The chief criticism which we have to offer is that the author gives expression to his own opinions concerning the various subjects discussed so infrequently. We feel that we should like to know what he thinks, occasionally, for it is only proper that the author of a text-book should give expression to the opinions which he must have formed during years of study and observation.

In conclusion, we regard this as one of the best of the smaller books upon dermatology, and we have no hesitation in recommending it to those who wish information, briefly and succinctly given, upon the symptoms and treatment of diseases of the skin.

TO CONTRIBUTORS AND SUBSCRIBERS.

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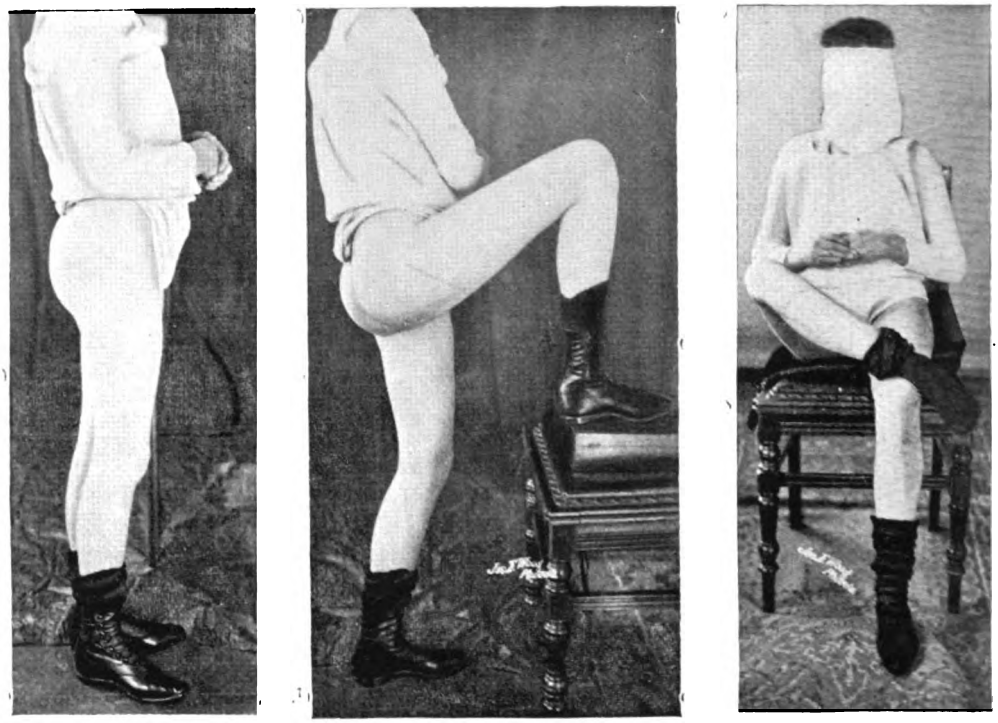
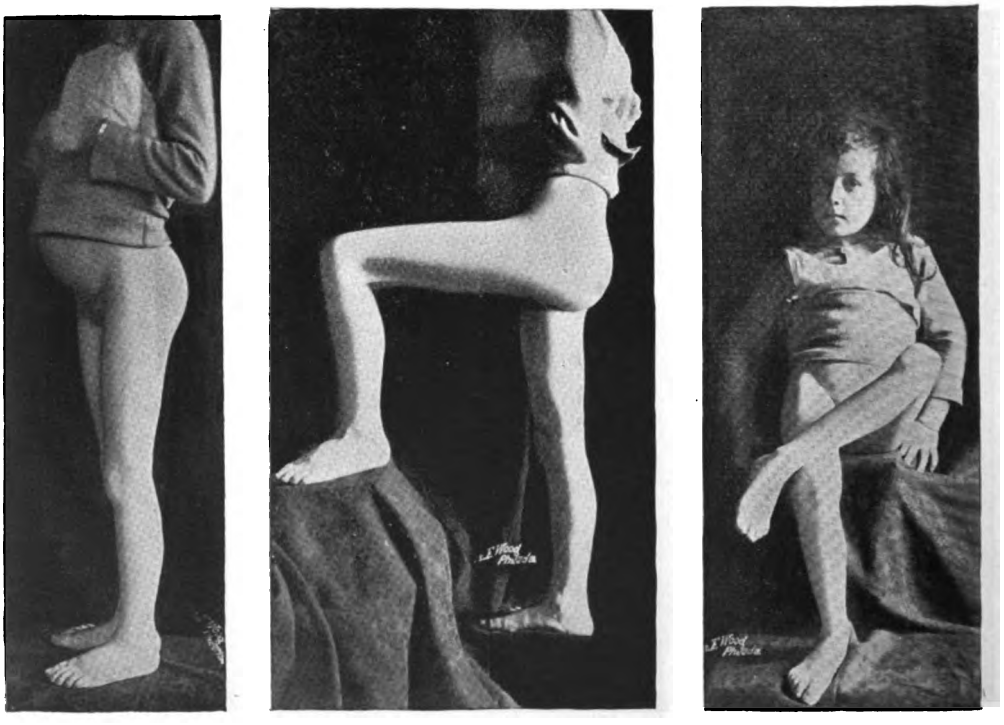


CASE I.—Right hip, cured, one-fourth inch shortening.



CASE II.—Left hip, cured, one-eighth inch shortening.

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UNIVERSITY
MEDICAL MAGAZINE

AUGUST, 1893.

THE CURE OF HIP DISEASE WITH PERFECT MOTION.

By James K. Young, M.D.,

Instructor in Orthopedic Surgery, University of Pennsylvania; Attending Surgeon, Orthopedic Department, University Hospital, etc.

It is customary among practitioners and general surgeons to look upon a recovery from hip disease with anchylosis as a good result, and all that is to be expected, while some few physicians, and the laity generally, look upon this disease as an incurable affection. With careful treatment under favorable conditions, cures have been reported in from 55 (Cazin) to 97 per cent. (C. F. Taylor) of the cases treated.

Recoveries with fair or perfect motion are rare, but this is the ideal sought, and this it is in some instances possible to obtain. Of fifty-one cases reported by Shaffer and Lovett, there were two recoveries with perfect motion in every direction. Twenty-six suppurative cases were included, and these showed as good an average of motion as the non-suppurative. Of thirty-seven suppurative cases examined by Howard Marsh, perfect movement was found in one case, and among thirty-nine non-suppurative cases, nine were classed as perfect recoveries. The cases reported by Shaffer and Lovett were treated by ambulatory methods throughout the disease, while those reported by Marsh were confined to bed, and treated by fixation and traction during the periods between the exacerbations.

Of four hundred and seven cases treated between 1859 and 1889, excluding resections, by Sayre,[1] with the portable traction splint, without immobilization, seventy-one were reported cured, with perfect motion. "In some cases," as Dr. Sayre remarks in his very valuable contribution, "the recovery has been so perfect and complete in refer-

[1] New York Medical Journal, April 30, 1892.

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ence to both form and motion, that the question has been raised whether the patient had ever been troubled with hip disease. It is on this account that I have selected only such cases to report as had been examined by other surgeons of the highest standing, and whose knowledge and ability to make a correct diagnosis would certainly be unquestioned in the professional world." Of this number he reports seven cases in detail, one of which is a good cure (Case V), and six are perfect cures.

These figures indicate the small number of cases of hip disease cured with perfect motion, but they also illustrate the possibility of cure with complete restoration of function. My own results correspond so closely with those reported by Dr. Sayre, that I have taken the liberty of recording two cases of cures with perfect motion, selected from a large number of cases which have been under my observation during the past seven years. Moreover, they have been obtained by methods analogous to, if not identical with, those employed by Sayre. Both the cases were examined and under the care of practitioners capable of making a correct diagnosis of the affection. Case I was examined by the late Dr. D. Hayes Agnew, and an immediate excision was advised as the only possible measure available.

These cases have been recently exhibited at a meeting of the Philadelphia County Medical Society (January 11, 1893), and the verity of the cures attested by a committee composed of Dr. Benjamin Lee, chairman; Dr. H. R. Wharton and Dr. Wm. J. Taylor.

CASE I.—A. O. C., aged 7 years, school girl, consulted me June 7, 1887. Her father is a laborer. In the winter of 1886 he suffered from some affection of the brain and lungs. Her mother is in good health. Four brothers and sisters also well. Two years before coming under observation the patient was kicked by a boy on the right hip. Six months later the foot turned out when sitting, and she complained of pain in the knee. Her general health had been fair. She was treated at St. Joseph's Hospital, and Dr. Agnew, who saw her at his office, advised an immediate excision. She was referred to me by Dr. George M. Boyd. Examination showed that the right hip was in the second stage of chronic tuberculous arthritis, with beginning anchylosis.

The measurements were as follows:

	RIGHT.	LEFT.
Length	23¾ inches	24 inches.
Circumference of thigh	9¾ "	10½ "
Circumference of calf	8¼ "	8½ "

The patient was put to bed and extension applied. Nine days afterward she was fitted with a long extension hip splint.

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The measurements on January 7, 1893, were as follows:

	RIGHT.	LEFT.
Length	30 inches	30¼ inches.
Circumference of thigh at 4 =	11½ "	12⅜ "
Circumference of thigh at 7 =	14 "	14¼ "
Circumference of calf	10¾ "	11⅛ "

The right hip shows slight fullness in front of the trochanter.

CASE II.—E. B., aged 6 years, was referred to me May 15, 1890, by Dr. R. H. Hamill. The patient had complained during the previous six months of pain in the left limb, and for two months there had been a limp in her gait. Her parents were healthy, but her paternal grandfather and uncle died of laryngeal tuberculosis. The child recently had a severe attack of rötheln, followed by a mastoid abscess.

On examination, the motion in the left hip joint was found to be limited in attempting forced flexion and extension.

Measurements:

	RIGHT.	LEFT.
Length	22½ inches	22½ inches.
Circumference of thigh	10¼ "	9¾ "
Circumference of calf	7½ "	7½ "

She was put upon constitutional treatment; compound iodine ointment was applied locally, and a Taylor long splint was applied. She remained under treatment until April 15, 1892, when the splint was removed without permission.

The measurements at this time were as follows:

	RIGHT.	LEFT.
Length	22½ inches	22⅜ inches.
Circumference of thigh at 3 =	9¾ "	8½ "
Circumference of thigh at 5 =	11⅛ "	10¼ "
Circumference of calf	8⅜ "	8¼ "

Forced flexion and extension are normal, but there is slight rigidity of the adductors on forced abduction. As noted above, there is one-eighth inch shortening in the affected limb. The degree and range of motion have improved daily. This case may also be considered a perfect cure.

Treatment.—These cases were treated by traction without immobilization, and show the good results obtained by this method. The long portable traction splint was used, and the patients encouraged to walk as soon as it was securely applied; they thus secured the beneficial effects of air and sunshine. Traction was continued at all times, the apparatus being worn at night as well as in the day time. Locally, compound iodine ointment was applied daily, either in the groin or behind the trochanter of the affected side. Constitutional treatment was employed throughout the entire course of the disease, compound syrup of hypophosphites being given in summer, and cod-liver oil in winter.

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THE TREATMENT OF CHOREA BY LARGE DOSES OF QUININE.[1]

By W. A. N. Dorland, M.D.,

Instructor in Gynecology, Philadelphia Polyclinic: Physician to St. Clement's Hospital, Philadelphia,

AND

Charles S. Potts, M.D.,

Instructor in Nervous Diseases, University of Pennsylvania; Physician to Dispensary for Nervous Diseases, University Hospital.

Of the various theories that have been advanced from time to time in the effort to elucidate the etiology of chorea and to localize the affection, that is, to ascribe to the choreic movements either a cerebral, or a spinal, or a conjoined origin, that of a diminution or loss of spinal inhibition recently proposed by Professor H. C. Wood in a contribution read before the Philadelphia Neurological Society, and published in the *Journal of Nervous and Mental Diseases* for the month of April, may be accepted as pre-eminently a rational one: a theory that is based upon sound scientific investigation and deliberate ratiocination. We would invite a perusal of this very interesting paper, as giving in a more concise and intelligent manner than any resumé we could offer the various steps that led up to the enunciation of the theory suggested. In the meanwhile permit us to review briefly some of the principles involved in this line of study of the motor function of the cord, with its physiological and pathological manifestations.

It appears to be a fundamental law that certain highly specialized cells of the nervous organism have relegated to them powers that are dominant, whose function it is to dominate and regulate other cell-groups not so highly specialized in the assignment of the complex workings of the body. Especially is this law exemplified in the familiar manifestations of the well-known cardio-inhibitory centre of the vagal nucleus, and in the intensely interesting and intricate phenomena of thermotaxis. That group of cells to which has been allotted the power of inhibiting the motor function of the spinal cord is designated as Setschenow's centre, which, in the frog, is placed in the optic lobes, and in man and the higher vertebrates is believed to be situated somewhere in the corpora quadrigemina or medulla oblongata. Whatever may be its precise location, it is undoubtedly true that stimulation of this portion of the brain substance will be followed by a marked diminution in the reflex activity of the cord, thus demonstrat-

[1] Read before the Section of Diseases of Children of the American Medical Association, at Milwaukee, June 7.

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ing at once the dominating influence of the centre over the motor tracts of the cord beneath.

Spitzka, in the "Reference Handbook of the Medical Sciences," has aptly said: "The spinal cord is essentially a segmental organ;" in the typical vertebrate it may be regarded as made up of a series of nerve centres, fused into a column, "each centre corresponding to a somatic segment, with which it is connected symmetrically by a pair of spinal nerves. Each one of these spinal segments corresponds in its topographical situation with the somatic segment which its nerves supply, and these nerves take a direct transverse course, leaving the cord at right angles to traverse the intervertebral foramina, and thus reach their somatic destination."

Stimulation confined to any one of these spinal centres—thus directly or absolutely augmenting its motor power, or its function of motor discharge—or the cutting off from any one such centre of the inhibitory action of the dominant centre in the brain above—thus, primarily, indirectly or relatively, and secondarily, absolutely increasing its motor power—will be accompanied by spasmodic muscular contraction in the somatic segment supplied by the implicated centre. This is self-evident. Now, generalizing, suppose that the direct stimulation be applied to the spinal centres as a whole, the entire cord, simultaneously, or that the inhibitory action instead of being removed from a single spinal centre be very perceptibly diminished, or absolutely cut off from the entire cord, and it will go without saying that all of the somatic segments supplied by the spinal motor nerves will be involved in the exaggerated discharges of motor force, and that the muscular system of the body will, so to speak, run riot.

Professor Wood, from his studies in this direction, would ascribe to chorea some such origin as this: He suggests that the direct cause of the affection lies in a disturbance or overbalancing of the equilibrium that normally exists between the motor power of the spinal cells and the inhibitory apparatus of the spinal cord located in the so-called Setschenow's centre of the brain, the latter in choreics being involved in a paresis more or less marked. During inhibition the function of an organ is restrained; during paralysis it is abolished. The amount of disturbance will depend entirely upon the degree of loss of inhibition. Thus may be accounted for the varying grades of choreic manifestations, from the slightest case of so-called spinal irritation, with the characteristic unrest and ebullition of nerve force, and the exaggerated reflexes of the neurotic individual, to the grave cases of chorea major, with absolute loss of control of voluntary muscular effort, and finally, diminished or absent reflexes from exhaustion and depression of the entire motor area of the cord.

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Nowhere is the perplexing uncertainty that surrounds the true etiology of chorea better demonstrated than in the very recent work of Landon Carter Gray. In it he gives a varied list of causes of the disease, covering the most remote possibilities, and including such unsatisfactory etiological factors as the seasons, the emotions, malaria, race, eye-strain, as well as the more definite causes, trauma, articular rheumatism, imitation and heredity. After such an array we would naturally expect to hear him say that "although certain cerebral changes have been well described in the chronic and fatal cases, as well as of the disease in animals, there has never been any approach to a description of the pathological alterations that would explain the movements of the ordinary cases of chorea of the Sydenham and athetoid types." We would suggest that at least an intimation to this "approach" is made by such an explanation as the ingenious inhibitory theory of Professor Wood.

So much, however, for the physiology and pathology of the subject; now for the direct application of the principles thus hinted at, for, as far as is possible, all therapeusis should be based upon the results of physiological investigation and its ultimate rational conclusions. Accepting the premise, and regarding chorea as due in all probability to a diminution or loss of the inhibitory power of Setschenow's centre, it is evident that our efforts, therapeutically, should be directed toward the employment of such remedies as will tend to increase or restore the diminished or lost inhibitory power. Hitherto the drugs that have been exhibited in the treatment of chorea have been of two classes: either those whose action upon the nervous system has been confined to the motor nerves—direct paralyzants of the motor nerves and their peripheral filaments; or those whose physiological effect upon the nervous organism has been that of a powerful depressant of the spinal centres. To the former class belong the bromides, lobelia, and the more recently revived remedy, conium; while in the latter would be grouped arsenic, calabar bean, chloral, cimicifuga and antipyrin. Antipyrin alone reaches a little further in its action, and exerts upon the cerebral cortex a peculiar sedative influence.

In quinine, however, we have a remedy whose action upon the nerve centres differs radically from that of the remedies we have as yet mentioned. Since the researches of Chaperon, thirty-five years ago, repeated experiments in the physiological laboratory have abundantly demonstrated the soundness of his claims. The direct stimulating action of quinine upon the so-called inhibitory centre of the cord, even in small doses, is now thoroughly established. Undoubtedly, during its exhibition there is a remarkable diminution in the reflex activity of the spinal centres. In cinchonized animals the discharges

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of motor force are sensibly lessened, and this spinal inhibition increases *pari passu* with the degree and duration of the cinchonism. This interesting observation suggested to Professor Wood the possible utility of quinine in the chorea of dogs. A choreic animal in the Hospital of the Veterinary Department of the University of Pennsylvania was subjected to the method of treatment, and with a most interesting and satisfactory result. Within one week from the initial dose of quinine, as Professor Wood records, the spasmodic muscular movements had almost entirely disappeared. With this indication to its still further applicability in the management of convulsive spinal affections, choreic patients visiting the dispensary for nervous diseases in the University Hospital were placed upon the quinine treatment, under the direct supervision of Professor Wood and Dr. Potts. While the time that has elapsed since the commencement of the treatment has been short, and the number of patients limited, the results obtained thus far have been, to say the least, gratifying. In but four instances did the disease fail to respond to the influence of the drug. A synopsis of the cases so treated is appended.

CASE I.—L. C., aged 14, female. Is attending school. Family history good. Has had all the diseases of childhood, including scarlatina. Her first choreic attack was noticed on January 1, the twitchings beginning in the tongue. The movements at the time of her first visit, on the 19th of January, were general and severe. She had difficulty in talking, and at times bit her tongue. She was given quinine, gr. iv, every three hours, until cinchonized, and then three times daily.

January 21. Movements still present, but much better.

February 24. Reports herself nearly well.

CASE II.—M. A., aged 14, female. Attends school. Reported at the dispensary on the 9th of December, 1892, suffering with her second attack of chorea. The movements had begun a few days before, subsequent to a febrile attack. No history of rheumatism. The movements were general. She was placed upon increasing doses of Fowler's solution and iron, and this treatment was continued without marked benefit until February 11, 1893. She was then given quinine, gr. iv, four times a day, with immediate and considerable improvement. She was under this treatment for ten days, at the expiration of which time she reported herself as cured.

CASE III.—E. F., aged 8, female. Attends school. Reported first at dispensary March 14, 1893.

The choreic movements had been noticed since the 1st of January, the attack having followed a fright. They began in the left arm, and at the time of her visit the entire left side was affected. Her speech

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was thick; she complained of pain in her left knee, and her mother said that she had enuresis since the chorea began, although perfectly healthy previous to this. The family history was good. She was placed upon quinine, gr. iv, four times a day.

March 17. Reports much better, and did not return. The presumption is that she was cured.

CASE IV.—L. D., aged 10, female. Attends school.

February 24. Visited the dispensary with the second attack of chorea, which had lasted then for about a week. The movements were confined to the right side. No rheumatism. Was given quinine, gr. iv, four times daily.

February 27. Mother reports great improvement.

March 13. No movements noticeable.

April 5. Return of some movements. The quinine was continued and syr. ferri iodid., gtt. iii, and emul. ol. morrhue, f3i, t. i. d., were added to the treatment.

April 19. Reported with complete disappearance of the choreic movements.

CASE V.—L. K., aged 14 years. School girl.

March 1, 1893. Came to the dispensary with slight choreic movements, affecting principally the muscles of the face. This is her second attack, the first one occurring when a year old, and lasting for three years. She was ordered quinine, gr. iv, four times daily.

March 13. Her mother reports that she is much better. Cinchonism present.

May 1. Came back with return of symptoms, which she says commenced soon after stopping the medicine. The same treatment as before ordered was advised, and at this date, May 17, 1893, she has not returned.

CASE VI.—M. H., aged 9, female. Attends school.

November 7, 1892. First visit, the attack being of two weeks' duration. The movements began on the left side, which is now the worse, though both sides are affected. No history of rheumatism or other acute diseases. Has always been nervous. Heart's action rapid. Was placed on increasing doses of Fowler's solution without improvement.

December 6. Is taking ten drops of Fowler's solution with compound syrup of the hypophosphites. Some gastric irritation present.

December 19. Considerable irritation. The dose was reduced to drops v.

January 25. Choreic movements somewhat better, but has developed a neuritis in both legs. Was given quinine, gr. iv, t. i. d.

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February 8. Choreic movements have nearly disappeared. Has not completely regained the power in her legs, but they are much improved.

February 21. No evidence of chorea visible.

CASE VII.—D. K., aged 12 years. Male. Attends school and works on a farm between times. Visited the dispensary April 12, 1893, suffering from his first attack of chorea. The movements were very severe, involving both sides; he could feed himself only with difficulty, and his speech was so much affected that it was almost impossible to understand him. Quinine, gr. iv, four times daily was ordered.

April 15. No better. Dose increased to gr. iv, five times daily.

April 17. No improvement. Increased to gr. vi, q. i. d.

April 21. About the same. Ordered Fowler's solution, gtt. iii, t. i. d.

April 26. Somewhat better. Is taking five drops of Fowler's, t. i. d.

May 11. Is nearly well. Fowler's solution, gtt. x, t. i. d.

CASE VIII.—R. B., aged 11 years, female. Attends school. Was treated at the dispensary for her first attack of chorea, from April 26, 1892, to August 9, 1892, with arsenic and tonics. No movements when she stopped treatment. Returned March 14, 1893, with slight movements. Was given quinine, gr. iii, five times a day.

March 17. Reported worse.

April 7. No improvement, when she was again placed on Fowler's solution, gtt. iv, t. i. d.

April 17. Much better. Is taking gtt. vii, of Fowler's solution.

May 2. Not so well. Fowler's solution was increased to gtt. ix, t. i. d.

She has not returned at this date, May 17, 1893.

CASE IX.—M. C., aged 14 years. School girl.

April 10, 1893. Returned to the dispensary with her second attack of chorea, her first one occurring about one year ago. The present attack has lasted several months. Both sides and speech affected. Ordered quinine, gr. iv, four times daily.

April 13. Seems considerably better. The dose of quinine increased to gr. iv, five times a day.

April 21. Choreic movements have almost disappeared.

May 16. Return of some movements involving principally the hands.

CASE X.—M. D., aged 7. Admitted to the hospital suffering with marked chorea of several weeks' duration. Gait very unsteady, almost staggering. Unable to feed herself. Was placed upon Fowler's solution for one week with but slight improvement. Three grains of quinine were then given in solution, five times a day. In three days there was a very perceptible diminution in the choreic movements.

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In two weeks she was able to use her hands in eating; in another week the choreic tremor was no longer noticeable. With the improvement in this respect there occurred also a change in her disposition, the child becoming brighter and more playful. Fifteen grains of quinine were administered daily for three weeks without the slightest sign of cinchonism. Appetite remained good throughout.

CASE XI.—M. B., aged 12. School girl.

May 16, 1893. Second attack. Slight chorea for one week, preceded by rheumatic pains. Was given quinine sulph., gr. iv, q. i. d.

May 22. Chorea worse, gr. vi, t. i. d. Pil. iron and strych., t. i. d.

May 25. No improvement. Fowler's solution, gtt. iv, t. i. d. Has not reported since.

CASE XII.—A. L., aged 14. School girl.

May 15, 1893. Chorea since March, both sides and speech affected. Mother has had convulsions of an epileptic character. Was given quinine sulph., gr. vi, t. i. d.

May 22. Better, gr. vi, t. i. d., and pil. of iron and strych., t. i. d.

May 29. Much better. Is taking quinine, gr. xxvii, daily.

CASE XIII.—M. A., aged 12. School girl.

May 13, 1893. Second attack, first one in 1892. Movements in left side of moderate severity and do not cease during sleep. Was given quinine, gr. iii, t. i. d.

May 17. No better, gr. vi, q. i. d. Strych. sulph., gr. $\frac{1}{60}$, t. i. d.

May 20. About the same. Was given Fowler's solution, gtt. iv, t. i. d.

May 24. No better; dose of the Fowler's solution increased to gtt. v.

May 29. Slight improvement.

CASE XIV.—C. S., aged 14. Salesgirl.

May 13, 1893. More or less choreic movements of muscles of face for past four years. Lately these have involved entire body. Was given quinine sulph., gr. vi, t. i. d.

May 17. No better, gr. vi, q. i. d.

May 19. Much better. Syr. hypophos. co., ʒj, t. i. d.

May 27. No chorea.

CASE XV.—D. R., colored, aged 10. School boy.

May 24. Has had choreic movements for one year, which of late are much worse; both sides and speech now affected. Was given quinine sulph., gr. iv, t. i. d.

May 29. Better, gr. iv, t. i. d., and pil. iron and strych.

CASE XVI.—Notes given by Dr. Lawrence S. Smith, Resident Physician, University Hospital.

J. F., aged 10. School girl. Born in England; one of three children. One sister is feeble minded; another is weak and delicate.

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Two or three years ago she was frightened by a dog, and to this occurrence her mother attributes the chorea which began at that time, and has continued with increasing severity. When admitted to the hospital on February 3, 1893, the choreic movements were almost constant, and so violent that she was not able to articulate distinctly, to feed herself, or to walk without great staggering and imminent danger of falling. She was much emaciated, appetite very poor, and she appeared almost feeble minded. She was given quinine sulph., gr. iii, in solution, six times in the day, and this was borne without any unpleasant symptoms.

The dose was increased to gr. vii, three times daily, in about a week, and again in seven days to gr. vii, four times a day. With this increase in the dose, emulsion of cod-liver oil, f3ii, t. i. d., was ordered. The quinine and cod-liver oil did not affect her stomach, and she complained of no unpleasant symptoms.

Under this treatment she gained in weight, her appetite doubled and her mental condition improved. The choreic movements became very much less violent within three days after she was placed under treatment, and they continued to improve while she was in the hospital. She could talk, eat and play around like other children, and at times the chorea was scarcely noticeable. From being almost helpless she became as active, jolly and useful as any of the children in the house. She was discharged improved April 15, 1893; since she left the hospital she has not been heard from.

CASE XVII.—T. De A., aged 15 years, school girl, was admitted to the hospital on June 1 with her fourth attack of chorea. She has always been nervous, and from infancy has suffered with enuresis. The present attack is of one month's duration, the movements involving the left side. She is unable to hold anything in her left hand; speech is slightly involved. She was given quinine sulph., gr. vi, five times daily.

June 5. Reports better. Was given syr. hypophos. co., 3i, t. i. d.

June 9. Is able to hold things much better. The dose of quinine now increased to gr. vi, six times daily.

June 14. Much better. A curious fact is that she has not wet the bed since taking the quinine. She is now taking forty grains daily, and there is no cinchonism.

June 19. Reports almost cured.

In addition to these, several severe cases were placed upon this treatment by Dr. J. H. Musser, who kindly sends us the following summary of his results: "They all bore enormous doses of quinine with benefit at first, but subsequently relapses took place, and final cure ensued after the use of arsenic."

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This record must be left to speak for itself. It will be noticed that in a number of the cases almost immediate improvement took place, which continued for a time, after which relapses occurred. This occurrence, it seems to us, may be due to the fact that the quinine merely acts as a stimulant, and like all stimulants loses its effect in time, to be followed by depression. Therefore, so far as any conclusion can be drawn from such a limited number of cases, it would seem that the best treatment for chorea would be the administration of large doses of quinine to lessen the severity of the movements, adding at the same time measures to build up and strengthen the depressed nervous system. This seems to be shown in Case IV, where final cure only took place after the administration of cod-liver oil and iron, and also in Case X, where cod-liver oil also had to be administered after a time. Another fact worthy of emphasis is the large doses that the majority of the children could take without any evidence of cinchonism. Finally, we do not claim that quinine is an absolute cure for chorea, and that from this time no such thing as failure in the treatment of such cases will be recorded. It should be borne in mind that after the chorea has been of long standing, and the loss of inhibitory power considerable or absolute, there must result organic changes in the motor cells of the cord, with the development of an atrophic condition. In such cases it is probable that failure will be the result of any form of medication, however rational. What is claimed is that in the acute form of chorea the results thus far obtained from the administration of quinine in large doses have been such as to warrant a further investigation as to the merits, immediate and ultimate, of this line of treatment.

PERIODIC PARALYSIS, WITH THE REPORT OF A CASE.

By Charles W. Burr, M.D.,

Visiting Physician to St. Joseph's Hospital; Pathologist to the Orthopedic Hospital and Infirmary for Nervous Diseases.

A. S., single, aged 30 years, came to my service at the Polyclinic in February last, complaining of periodic attacks of paralysis involving all the extremities.

His parents are living and healthy. Nine brothers and sisters died in infancy; two are still alive and healthy. No evidence of parental syphilis can be obtained. The patient never had convulsions, malaria, or indeed any serious illness except the present one. Since 10 years of

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age he has been subject to attacks of the following character: He is awakened by aching or rather soreness in the muscles of the arms and legs and on attempting to move finds that he is more or less unable to do so, not on account of pain, but from loss of power. The paralysis is never absolute. He can always move the hands and feet a little, though he cannot stand nor feed himself, nor indeed hold anything nor make any complicated movement. Rarely, one or two members are not affected. The cranial nerves always escape, and there is very slight involvement of the neck. There is never any affection of speech, unconsciousness, or loss of control of bladder or rectum. Sensation in all forms is normal. The attacks last from a day to a week, and recur about once in four months, though during the first few years they were much more frequent. Recovery is gradual, that is to say it is a matter of several days, and may begin in any extremity. The patient has no warning of the onset of an attack, no illness, no fever.

When first seen, two days after the beginning of an attack, and while the paralysis was receding, there was left hemiparesis, the face not being involved. The left leg dragged slightly in walking, and it was difficult for him to raise it in going up stairs. In the arm the loss of power was more marked. The member hung limp at the side. He could not put on or take off his coat, feed himself nor put his hand to his head. The grasp was very weak—40—while on the right it was 150. There were no contractures. The knee jerk was absent on the left and not reinforceable. On the right it was slight but distinct. The plantar reflex and biceps jerk were slight on both sides. Station was fair.

The eyes were examined by Dr. Mayo, who reports that the only abnormality is a slight overlapping of the red field by the blue. The pupils are equal, and react well to light and accommodation. The fundus is normal. Examination of the thoracic and abdominal organs reveals no signs of disease. The spleen is not enlarged. The urine is normal. Circumstances prevented an electrical examination. He is a well-built, strong-looking man. He worries much about his condition, and is in constant fear of an attack. Though, as stated above, the onset is always during sleep, yet he at times becomes momentarily weak in the street, never while at home, and feels that he must return to the house lest he lose the power of walking.

The hemiparesis which was present when first seen disappeared after a few days. Some weeks later he had a slight attack involving all the extremities.

On hearing this remarkable history, my first thought was of deception. Careful questioning of the relatives of the patient, however, verified the statement that the affection began in childhood, and it is

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hardly conceivable that fraud could have been begun so early and have been carried on successfully during so many years. Further, the manner of the man was frank and honest, and his story lacked the dramatic element commonly found in the tales of those anxious to make an impression. I am now convinced, after careful study of the case, that the affection is genuine.

The commonest form of this rare affection, periodic palsy, is that which occurs in persons suffering from malarial poisoning. It is indeed curious that it should be so rare if malarial poisoning be in truth the cause. We owe to Romberg[1] the description of one of the first recognized cases of the affection. A woman, 64 years old, suddenly became paraplegic, with involuntary discharges from the bladder and rectum, but without fever. The following day the palsy disappeared, but returned again on the third and the fifth day. She recovered completely under quinine.

Gibney[2] reports two cases. In the first there were four attacks, affecting the legs always, and once the arms also. Each attack was preceded by fever, and varied in duration from a week to six months. The reaction of degeneration was present in some muscles. Recovery followed the administration of quinine. In the second there were three attacks, each preceded by fever and pain in the legs. The patient died two weeks after the last attack in convulsions. An autopsy could not be obtained. Gibney suggests that the affection may have been due to congestion and edema of the cord analogous to that occurring in the spleen.

Cavaré[3] reports the case of a woman who two days after parturition complained of tingling in the extremities, followed by general paralysis and anesthesia. The tongue was affected so that speech became incomprehensible, and swallowing was difficult. There was slight fever. After three hours the palsy passed away to return again for a few hours the next day and the day after. The administration of quinine was followed by complete and immediate recovery.

Hartwig[4] reports a case occurring in a man five years after an attack of tertian ague. The palsy involved legs, arms and neck, with difficulty in speech, respiration and deglutition. There were no sensory disturbances. Each attack began at night, and was accompanied by pain, but there was always copious sweating. Electric excitability was almost abolished. The attacks were irregularly tertian in type. Quinine ameliorated the condition promptly and for a long time, but

[1] Diseases of the Nervous System, Sydenham Society, Vol. II, p. 439.
[2] American Journal of Neurology and Psychiatry, Vol. I, 1882, p. 1.
[3] Gazette des Hopitaux, 1853.
[4] Inaugural Dissertation, Halle, 1874.

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when discharged, some six months after the onset, he was still uncured. The attacks could sometimes apparently be prevented by movement.

Suckling[1] speaks of a man who, after a fit of ague, had several attacks of sudden paraplegia, with anesthesia, thick speech, absent plantar and cremasteric reflexes, and normal knee jerk. The electrical reactions were normal. Recovery was complete. The case is complicated by the existence of syphilis.

Though some of the cases just quoted are possibly regarded by the authors as being of malarial origin on insufficient grounds, yet they give a fair view of the symptomatology of malarial intermittent paralysis. They throw no light, however, on the case of A. S. In it there certainly was no malarial element, and we must look further for a possible explanation.

In 1884 Shakovitch[2] reported the case of a man, 44 years old, who was subject to attacks of periodic paralysis, which always commenced in sleep, involved arms and legs, without any sensory disturbance, but with subjective feeling of stiffness. The attacks lasted three to twelve hours, and came on daily or once in a few months. The reflexes were abolished. Consciousness was not affected. The patient's father suffered from the same affection, and "died from an increase in the frequency of the attacks."

Westphal[3] reports the case of a boy who was palsied in all extremities with absolute loss of electrical reactions in the nerves and muscles. Sensation and consciousness were unimpaired. The knee jerk was absent during one attack, and the plantar reflex in all, while the cremasteric and abdominal reflexes were normal. The onset occurred during waking hours. Recovery ensued after several months.

A remarkable series of cases, all occurring in one family, is recorded by Georges Cousot.[4] The mother, and four out of eight children, were affected. We will quote only the case of the oldest boy. The attacks were irregularly quotidian. The palsy involved all the members, but was not absolute. Speech and deglutition were somewhat interfered with. Sensation remained perfect. The attacks lasted eight to ten hours, and usually occurred at night. In the intermissions the electrical reactions were normal, but during the attacks absent. The fields of vision were normal. During the attacks a peculiar oily sweat, a kind of seborrhea, appeared over the body. The temperature was never higher than 99.2° F. Curiously enough, if the patient was at work (copying music) at the time of onset, the arm in use was not affected till

[1] Brain, 1887-8, Vol. x, p. 474.
[2] London Medical Record, 1884 (quoted from Vratch, No. 32, p. 537.).
[3] Berliner klin. Wochenschr., 1885, Nos. 31 and 32, p. 483.
[4] Revue de Medicine, Vol. VII, 1887, p. 190.

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he stopped work, or, if he forced himself to walk, the attack might be limited to the arms. The author suggests paralysis of inhibition as an explanation, but admits that this does not clear matters very much.

Goldflam[1] reports a family in which the mother and eleven children were affected. He suggests in explanation an auto-intoxication, the poison acting upon the nerve ending in the muscles. Experimentally, he determined that the toxic properties of the urine was much increased during the attacks.

These cases and Hartwig's are sufficiently alike to be grouped together. They all present the greater number of the important symptoms: periodicity, absence of electrical reaction, absence of anesthesia, decreased or abolished knee jerk, frequent nocturnal onset, and the liability of several members of one family to be affected. The case of A. S. agrees in the main with these, but the impossibility of electrical examination renders the report incomplete.

I can offer no explanation of the causation of this curious affection. To call it hysteria is but to give it a meaningless name. It may in the future be shown to be due, as Goldflam suggests, to an auto-intoxication. The fact, however, that voluntary movement in two of the cases sometimes aborted an attack, points to the possibility of a psychic origin.

MEDICAL GOSSIP OF FORMER YEARS.

By A. J. Hamilton, M.D.,

Cassville, Huntingdon Co., Penna.

In studying the medical literature of the first quarter of the present century the student is amazed at the disparity of development in the correlative sciences of medicine and surgery. With the exception of brain, and, perhaps, abdominal surgery—though even here laparotomy and gastrotomy had been performed with success—the latter branch of the science has improved very little. So far as the technique of operative procedures is concerned, our fathers have not been surpassed by later day operators in the manipulation of the knife, and in the diagnosis of fractures and dislocations it is doubtful if we possess to-day the peer of Cooper or of Dupuytren. It is true that the surgeons of that period went straight to the point aimed at, as evidenced in their mode of reducing dislocations of the hip, or in the tying of the common carotid, so that the operator might remove a

[1] Zeitschrift für klinische Medicin, Bd. XIX (Supplement), 1891.

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tumor from the mouth, unembarrassed by hemorrhage, but they reached the point nevertheless. And as history, even in surgery, repeats itself, it may not be amiss to record that as Jamieson tied the common carotid three-quarters of a century ago, to enable him to remove a fungoid mass from the mouth, so White opened the trachea and inserted a tube that he might pack the pharynx full of sponges, and then remove a diseased tongue. The object aimed at in both instances was the same. And in both instances the fertility of resource marked the true genius.

In plastic surgery, too, the operators of the time had arrived at an astonishing degree of proficiency, Cooper having dissected up a flap from the scrotum, and used it with perfect success in closing a perineal fistula through which the urine escaped; thus, in the stilted language of the day, "He added to surgery a new application of the Taliacotian art." It cannot be denied, however, that the early surgeon seemed rather indifferent to the fate of the patient, contenting himself with having performed the operation *brilliantly;* thus Anderson, in commenting on the ease of tying the external iliac, his patient having died on the twelfth day, says: "From what has been said, it will appear to every unprejudiced mind what a simple and safe thing it is to apply a ligature around the external iliac. Really, I feel as confident that under the ordinary circumstances of aneurism this artery could be tied with success, as that the common operation of phlebotomy is unnecessarily attended with hazard." His confidence is refreshing.

A curious relation between the students and professors seems to have existed in those early times, especially in the French schools. The professors cordially despised the students, and the students just as cordially hated the professors. Mr. Cross, who wrote sketches of the schools of Paris about the beginning of the present century, has left the following record: "The young men who swarm in the hospitals are very poor and very unruly. They are despised by the higher classes of Parisians, who distinguish them by the degrading epithet of *carrabins.* Dupuytren, surgeon to the Hotel Dieu, treats the students with the greatest contempt, which is returned by them with a great deal of hatred into the bargain. Last year he had all the carrabins turned out of the wards by gendarmes, at the point of the bayonet."

In the use of medicines, also, the surgeons of Paris at that time displayed acute observation, and in syphilis were undoubtedly very much in advance of their brethren of England and the United States. In the venereal hospital, jocosely called L'hospice-des-Capucins, over which M. Cullerier presided, mercury was the *piece de resistance* in syphilis, and Mr. Cross, in his "sketches," is warm in

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his praise of this excellent institution. In proof that the practice of giving corrosive sublimate in syphilis is advantageous, Mr. Cross remarks: "Of all the cases I saw there were not half a dozen cases of eruptions, no bad cases of disease of the bones of the face, no loss of palate." And this in Paris, and about the close of the Napoleonic wars!

But when we turn to the medical contemporaries of Dupuytren, Boyer, Cooper, and their colleagues, we cannot but wonder what the medical world had been about during all the years since the time of Hippocrates. All other sciences had made wonderful strides during the years following the Reformation, but medicine had somehow failed to keep pace. "The doctrines of John Brown, mixed up with the humeral pathology, form the basis of the present system adopted in the Parisian schools," wrote F. J. Didier. "In their lectures and books they are always talking about Hippocrates, Galens, Celsus, etc., as if not a particle had been added to the stock of human knowledge since their time." It is doubtful if there had, so far as the domain of medicine was concerned. "By the fear which prevails among them of powerful remedies, and by a deep shade of Galenical practice, there exists among French physicians a peculiar and so often ridiculed reliance on ptysans, nostrums, glysters, etc." A wag of the time remarked that the English physician killed his patient, while the French one let his die. And a writer in the *Edinburg Review* said, with more force than truth: "The French are indeed in the most deplorable state, in which men who wish for knowledge can be; for they have theories without philosophy, and the place where they are most deficient is at the bedside of the patient." What an Englishman most despises in this world is indecision.

Listen to this paragraph, gravely penned years and years after Currie had invented the clinical thermometer: "Dr. Broussais has thrown some light on the subject of phlegmasias, hemorrhages, etc. And M. Lænnec has invented an instrument which he calls stethoscope, which is destined to ascertain the state of the lungs. His work 'De l'Auscultation Meditate' is highly interesting, and claims a distinguished place on the shelf of every medical library. I will say of the experiments on live animals by Magendie and Legallois, that they prove scarcely anything but the cruelty of their authors, and show pretty clearly that they would be tolerably good executioners.

"When I first visited the wards of the hospitals I was surprised at a certain manœuvre of the physicians, *i. e.*, thumping the breast of the patient. This *procede* is dignified by the name of *percussion*, and is employed to ascertain certain diseases of the chest by the sound. A physician of Vienna 'discovered' this new diagnostic secret, with

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which he favored the world in a pompous work, called 'Inventum Novum ex Percussione.' In M. Lænnec's work there is a great deal on this subject." Not even the name of the immortal discoverer of percussion thought worthy of mention by a Parisian letter writer!

But if our brethren were deficient in precise medical knowledge, they were slow to admit it, judging from the acrimonious nature of the disputes which raged among them. A sort of pompous diction was characteristic of the literature of the age, which was interspersed with stinging personalities and the most biting sarcasm. Their medical essays were frequently prefaced and ended with classical quotations, and a thread of the same often ran through the whole. A pedantic desire to appear learned was prominent in their writings, and the medical controversialist was never so happy as when he had demolished an opponent with a swinging "right hander" from some Latin or Greek author. Even the reviewer seldom failed to apply the critical scalpel at some point in his paper, no matter how famous the author he was reviewing.

Sir Astley Cooper's work, called "Medical Essays," appeared in 1817. A long review of the work appeared in the *Medical Recorder*, in which the writer indulged in almost fulsome flattery, but he closed with the words: "His redundant and ill-constructed sentences, though they are very faulty, *will all be excused* while they convey such sound practical information and indicate such an active and independent judgment!"

It is profoundly interesting to follow these old essayists, and compare their conclusions with what is known now, after nearly a century of study. Their displays of temper add a zest to the acuteness of their observations, and the reader is apt to be surprised at the familiarity which these authors show with the great writers who preceded them. As a sample of what they themselves would probably have termed their "ratiocination," the following from Huxham might be studied with profit by the modern therapeutist: "The depraved constitutions of the atmosphere are the cause of almost all epidemic distempers! Nay, even the increase and duration of such as are properly styled contagious greatly depend on such constitutions. For do we not see in one year, for instance, in this town or that city one or two only seized with the smallpox or measles, whereas in another year from one person at first seized the contagion spreads to immense numbers, so that the very air seems to foment or suppress the contagion, like as a spark of fire thrown on proper materials bursts into a vast conflagration, whereas falling into the water or the like it is presently extinguished." We can easily excuse the faulty sentences when they convey such words of wisdom. But if the Frenchman of that period

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was timid in the use of powerful remedies, the same charge could scarcely be sustained against his American brother, or some of them at least, as the following communication from Charles Caldwell, professor of institutes of medicine in the University of Pennsylvania, will show. Mr. J. P. had been "subject to tænia" for three years. Spirits of turpentine, rust of iron and various preparations of mercury had been given with little advantage. Tin filings in large doses, followed by active saline purgatives, brought away at different times about thirty feet of the worm. At length the following prescription was given by a physician, "who, if he had not acquired celebrity for his skill, had at least became noted for the intrepidity of his practice:"

℞. Hydrargyri, Stanni, } āā ʒxij f. amalgam.

This was divided into twenty doses, one of which was to be taken at intervals of one hour. The patient heroically began to swallow the amalgam until he had taken fifteen ounces. On the following day he took a saline purge which brought away a portion of the worm measuring forty feet, but now the amalgam refused to be expelled, and remained as a metallic bullet easily felt when the patient leaned forward. The history ends thus: "The general health of Mr. P. has not received any obvious shock from this extraneous body lodged in his bowels, although it has lain there nearly eight months." That worm was certainly "fired out" in the literal meaning of the term.

As an example of the reviewer's art as practiced in the long ago the following may conclude this paper: Dr. Gibson was professor of surgery in the University of Pennsylvania. Having something to say on the subject of bronchocele he proceeded to say it, calling his brochure "Remarks on Bronchocele or Goitre." This is the way his critic proceeded to handle him: "We have, after very considerable exhaustion, got through the remarks on Bronchocele, or Gongrona, or Hernia gutturis, or trinidum Guttur, or Derbyshire neck, or monstrous craw or Aubi, or Bà or Ke-ba, or disease of the thyroid gland, for which the *very profound* and *Learned* Professor of Surgery in the University of Pennsylvania has with the most unwearied industry pointed out the above, and we don't know how many more monstrous appellations. We must honestly confess that when we read the introduction to the remarks on bronchocele we were at a loss to understand why the author had taken so much trouble to furnish so many names for this disease. But now that we have come to write a review of his observations, we have become satisfied that he has judged more wisely what was for our interest than we did ourselves. Our readers will remark that although we have condensed into a small space nearly all the information which will be found in the Professor's essay, that still

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our author has furnished us so bountifully with titles for the disease which he describes that we have never had occasion to injure the *beauty* and *softness* of our sentences by repeating the same term twice.

"Although it be evident that the principal object of Dr. Gibson's paper is to astonish not instruct his readers, still there is a claim to a discovery most cunningly introduced. A young lady 'who had labored for two or three years under goitre,' consulted the Doctor. He attended her for several months, and 'employed every remedy likely to prove of service, but in vain.' The Professor finding everything useless, and growing tired of her importunities, gave his fair patient a box of cicuta pills, 'which had been prepared for another purpose.' These pills had the effect of removing the Bà from the young lady's neck in three weeks. We allow that the discovery is very modestly claimed. The author concludes: 'It is possible that cicuta may have been employed before in the treatment of this disease, but I have not been able to meet with any mention of it.' We can tell the author that it is not only possible, but that it is most certain that cicuta has been used before *he* gave it to the importunate young lady. *It is, in fact, one of the commonest medicines used in the cure of bronchocele*, and had our author not examined the works he has quoted, merely for the purpose of appearing learned, he would have found that it was very generally recommended. His favorite author, Mr. Samuel Cooper, recommends it.

"Although we have laughed at the absurd affectation of learning which Dr. Gibson has shown in his essay, we consider it our duty to tell him seriously, in conclusion, that his conduct is deserving of a severer criticism!" Shades of Pope and Byron, after calling a man a knave, a trickster, a pedant and a fool, add insult to injury by intimating that he ought to be kicked also! It is just possible that there was some unfriendly feeling between the author of this philippic and Dr. Gibson, but as the latter's reply, if there ever was one, is lost in oblivion, we shall never hear his side of the case.

CONSCIOUSNESS FROM A BIOLOGIC POINT OF VIEW.

By J. Leffingwell Hatch, B.S., M.D., F.R.M.S. (London).

Late Lecturer on Bacteriology, and Assistant Demonstrator of Pathology in the University of Pennsylvania; Assistant Pathologist to the Philadelphia Hospital, etc.

Among the most recondite problems that have ever vexed the human mind, is that of consciousness. The ancients conceded this attribute only to man, and strove to discover just where, when and how

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he became aware of his environment. Buffon has given the world a graphic description of his idea of the feelings of the first man on awakening to consciousness. The newly-created being is supposed to be telling his own story, as follows: "I well remember that instant of mingled joy and anxiety, when I felt for the first time my extraordinary existence. I knew not what I was, where I was, nor whence I came. I opened my eyes. What an overflow of sensation! The daylight, the celestial vault, the green earth, the crystal transparency of the waters, all attracted me, excited me, and gave me an inexpressible sense of enjoyment." [1]

And who is there that has not often asked himself who, in truth, am I? Do other people whom I see around me really think and feel as I know I do? It is the striving to reconcile the mind to these perplexing and almost unanswerable queries that brings us face to face with the great question of consciousness.

What is it? and how are external impressions made cognizant to our inner selves?

The reply to these questions lies in philosophical deductions that are to be drawn only from biologic facts, and to fully comprehend the import of consciousness we must thoroughly understand the underlying biologic principles.

Consciousness is due to the appreciation of motion in sensor cells.

This motion is appreciated by an individual on account of the changes of equilibrium which the motion entails; appreciation is made possible by that property of exquisite irritability which the cells enjoy as a result of differentiation.

By motion we mean the exchange of place or relative position of atoms in matter. The arrangement of atoms in matter determines its polarity, and as attraction and repulsion (which are the osmotic agents of motion in molecules) are dependent upon polarity, likewise they must necessarily be dependent upon atomic transportation, which affects polarity.

In cells the ultimate divisions of protoplasm are known as plastidules, which by their arrangement determine the polarity of the cells. Cellular movement, then, is due to attraction and repulsion of these elementary bodies.

Attraction and repulsion are expressions of the forces of gravity and electricity, which may be considered as one force, the "pandynimis."

If motion occur then, wherever it is, it is due to this force. All our sensations, which are carried to the interior by means of the change in place of elements composing the nervous system or an

[1] Œuvres Completes de Buffon, 2d edition. Paris, 1819, Tome x, p. 358.

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alternate attraction and repulsion of juxtaposed cells, are brought about by impacts with this force. In other words, we cannot restrict the undulatory theory to the perception of sound and light alone; all sensations are vibrations.

By equilibrium we mean a satisfaction of polarity, or a balanced equation. When elements or atoms are in this condition they hold definite positions in relation to one another, but just so soon as there is a change in their polarity (however it is brought about, be it by direct current or by conduction), there is a change in position, a seeking again for a new state of rest, even as the sensitive magnetic needle strives to again find repose with its head toward the lodestone when it has been jostled out of its accustomed position.

Sensor cells are as quick to discern their altered position as the magnetic needle, and strive to rectify it; the appreciation of this changed condition is made possible to them by their possession, to the exclusion of every other property, of exquisite irritability. The possession of this property, to the exclusion of every other, has been brought about by that great conservative principle of evolution, differentiation, or division of labor, as Milne Edwards likes to designate it.

To fully understand this property of irritability we must study the morphology and physiology of cells from their earliest embryonic condition.

All cells come from pre-existing cells, and their multiplication is brought about by division, either direct or indirect.

This division is brought about by the struggle for existence, and depends upon a biologic principle that can be demonstrated by a mathematical theorem.

The theorem that I have reference to is the Leuckart and Spencer law, which is that the surfaces of spheres increase as the square, while the volume increases as the cube, so that beyond the sixth dimension after unity the volume increases faster than the surface.[1]

This law holds good for cells; as they grow in volume their surfaces are diminished, so that if a cell is dependent upon its surface for the absorption of pabulum, the nutrition of the central portion of the cell will be retarded, or even stopped entirely. The protoplasm dries up in this region and dehiscence takes place in order to increase the surface area and the nutrition-absorbing power of the cell.

It is by means of this cellular division that the homogeneous ovum is evolved through the different stages of the embryo into the heterogeneous tissues of the organism, and the cells, with diversified function

[1] Vide Ryder, "The Origin of Sex through Cumulative Integration and the Relation of Sexuality to the Genesis of Species." Proc. Amer. Philos. Soc., Vol. XXVIII, May 29, 1890, pp. 151, 153.

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that we find in the higher development they have reached, originally were united in one cell possessing all their combined powers.

In the ameba proteus, one of the lowest unicellular forms of life, we have all the functions of the higher forms contained in a single cell. It is *contractile*, it is *irritable* and *automatic*, it is *receptive* and *assimilative*, it is *metabolic* and *secretory*, it is *respiratory*, and it is *reproductive*.

The higher animals, then, are merely groups of amebæ associated together for mutual benefit, and as in all large organizations there must be a division of labor, it alike obtains here, and we have certain cells taking on more especially the function of *contractility*, others again that of *irritability*, and still others that of *assimilation*, and thus on throughout the entire series. This division of labor takes place early in the embryonic history of an individual, every cell taking up for a life vocation that function to which it is best suited. But these cells must be bound together by coördinating bonds and kept in communication with one another. In the mobile homogeneous ameba simple diffusion is sufficient to transport the pabulum added to one part to all other parts, and the entire cell is so irritable that a stimulus at one point is immediately felt throughout the cell. These two regulating processes are furnished the individual in the shape of a vascular and nervous system.

These cells, then, that have acquired the property of irritability in so high a degree as to be called nervous, are the portions of our bodies that explode when irritated, or, in other words, are conscious of the changes in their position or the position of their plastidules.

As the changes in position of other cells in the same organism or their relation to the external environment are likewise passed on to these little sentinels, they are cognizant of all that transpires in their immediate neighborhood.

Consciousness may then be said to exist in different degrees, depending upon the number of sensor cells involved.

These sensor cells differ in degree of irritability, some appreciating a certain number of vibrations and others a different number, just as different tones in a musical scale are made up of different numbers of sound waves, and, like them, some are in harmony. For example, if a string of a certain length and tension sound the note C when set into vibration, a similar string of the same length and tension will be caused to vibrate in accord with the first string when brought into proximity to it, although in a state of rest, and will give forth the same tone. This also holds good for those fractional divisions of the same string which are known as the thirds and fifths; tones of other lengths will remain mute.

We can readily see how one sensor cell, capable of producing a

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certain "conscious tone," will cause other sensor cells of the same tone power, or its thirds and fifths, to sound forth in harmony with it; and thus the intensity of consciousness will depend upon the amplitude of harmonious vibrations in sensor cells.

For certain purposes a less degree of consciousness is required, and a few of these sensor cells are united together for that purpose, and are commonly called ganglia. Most of our so-called reflex motions are due to the conscious direction of these little brains distributed all over the body.

It will thus be seen that consciousness is not restricted entirely to the encephalon, but exists wherever there are sensor cells capable of nervous explosion on being irritated.

If we place our finger on a hot stove the finger knows it long before the brain, and the sensor cells lower down tell their servants, the muscle fibres, to contract, and it is removed even before the wave of irritation has reached those aggregations of other cells that can vibrate in harmony.

We taste in our tongue; we feel the presence of food in our stomachs; we have pains in certain regions of our bodies; but the brain is not the only aggregation of cells that knows of it.

Consciousness, then, would seem to be merely a synonym for that property of matter which for want of a better name is called irritability; but that latent force which explodes when the cell is irritated is as far away from the scrutiny of man, veiled in the mysterious shroud of the unknowable, as it was when the morning stars sang together and a microscope was not even a conception.

From the foregoing exposition, it will readily be seen that we have approached a few steps nearer to the ultimate answer of the vexed question, but we still have more to learn about the great force pandynimis before we can proceed further.

I offer the above purely as a theory, but as it is from theories that practical results have to come (*e. g.*, the telephone from the undulatory theory of sound), so let us hope that this may guide us in our practical experiments to a more exact knowledge.

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MEMORANDUM.

JAPANESE NURSERY NOTES.

It has often been said that the Japanese are the most interesting, the strangest, even the quaintest, people we know. In no regard is this truer than in the care they take of their babies. Such a strong foundation is more necessary than elsewhere to a nation where man is born to remain a baby his whole life. We, destined to exercise stronger and more serious minds, would be, at the very beginning of our existence, deteriorated by such ingenious untiring care.

I have spoken, in another article,[1] of the long-continued lactation of Japanese women as benefiting both mother and child; also of the care taken of pregnant women, in which a solicitude displays itself at the same time clever and loving. These tender and intelligent attentions paid to the born baby is the second part of that unique Japanese system of rearing healthy and happy men, which makes European and American ladies forget that so many other Japanese conceits are a severe shock to their feelings.

During the dentition period the children have an extra diet, consisting of fish and small crustaceæ. Japanese not being a carnivorous people, this is natural enough. If they ate meat they would give their children beef very likely. But it is certainly to the advantage of the bony structure of the child to be, on first entering the adult course of eating, fed in the Japanese manner.

The abominable diaper is unknown to the Japanese. They use only a breech clout, which is removed at the moment of defecation. The child is then put in such a position that its legs straddle the arms, its body and head resting against the abdomen of the parent who, gently rocking it in a certain rhythmical, tentative fashion, and accompanying this action with a kind of low whistling, reminding you of a lullaby, gives her offspring its first lesson in personal cleanliness, which to the Japanese mind is exceedingly next to godliness. It will be seen how by this method unnatural positions are avoided, a thing the more important that Japan is the country of worms, distomata, etc.

It is known probably to every reading person that Japan, like all Oriental lands, is, for obvious reasons, furnitureless. It does not even know the cradle. As Diogenes made a cup of his hollow hand, thus the Japanese mother makes a cradle of the back of an older child, an ambulating, delightful cradle, where it stays from morning to night,

[1] Medical Record. October 11, 1890, on the Non-existence of Rachitis in Japan.

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and is unrhythmically rocked according to the chances and sports which the day offers to its patient and loving victim. Her back, of course, is its first cradle; when it wants the breast it reaches over or under her arm for it.

The cause of the absence of furniture is the presence of tropical vermin. This awful presence is probably, also, the cause of the carpetless state of the nursery.

The floor is covered with stuffed straw mats, thick and elastic; it is the usual floor of a Japanese house. This floor is mopped every day with salt water; it is in fact a chlorine wash. It must be remembered that in Japan the dirt of the street is not carried into the room, sandals and shoes being left at the front door. The necessity of keeping the floor in a sanitary condition is more important in Japan than anywhere else, because of the national habit not only of sitting but sleeping on the floor.

There is a singular difference between the carriage of Japanese children and the way in which our children walk and move about. The Japanese urchin, whose feet never knew the unkind pressure of tight shoes, and, in fact, no pressure at all, walks more erect, is more sure-footed. In fair weather he wears flat shoe sandals; in these sandals the big toe is widely separated from the others, which gives the child a surer foundation. In wet weather he must maintain his equilibrium on his stilt-like wooden clogs, which keep his feet dry, at the same time compelling him to acquire an extraordinary power over his own motions.

There is in Japan no kissing, not even in the nursery. All the dangers which have been so eloquently described in newspapers some time ago, arising from the touch of lips, in human love directly, and at the communion table indirectly, are avoided by the national aversion for labial contact.

The sexes are separated at an early age, and the separation is maintained until marriage. After marriage the husband has the right to annex to his household as many concubines as his means will allow. If his wife is delicate, he will perhaps suggest some friend of hers, who will prove rather an ally than a rival; at any rate, there will be no diminution of the friendship between the two women. When pregnancy occurs a second concubine may be suggested, and no such addition ever troubles the quiet waters of a Japanese household. It is incredible what amount of peace, and consequently happiness, the absence of the green monster alone may be the cause.

When she loses a child the Japanese mother does not wring her hands and look up to heaven; she sits, with folded hands, sunken head, her eyes looking into her lap. Japanese grief has been very

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eloquently described by my colleague in Japan, Professor Wernick, and I think it will be a good winding up of this little article if I quote a passage of his remarkable book, "Geographico-Medical Studies:"

"However often I have witnessed the death of dear relations—children, for instance, or husbands—I never had occasion to observe the wringing of hands to which European women of the lower classes are much addicted. A bitter sorrow was expressed through deep sinking of the head, grasping of the hands together, shedding of tears. That strong mental agony which digs into the soul, so to speak, and takes hold of it like a bodily pain, seems to be unknown to them. They never turn to heaven, their faces bathed in tears, an action which to us seems not only natural and in perfect accord with the essence of grief, but is considered as beautiful and as a worthy subject of artistic representation. In prayer, the Japanese mother does not lift her eyes to heaven; with bent head, the body somewhat shrunk together, with hands put together by the palms and slightly raised to the level of the chin, she sends her humble prayer for quite concrete things, you may be sure, to Buddha."

ALBERT S. ASHMEAD, M.D.

DEPARTMENT NOTES.

PHYSIOLOGY.

THE ACTIONS OF PILOCARPINE ON BODILY TEMPERATURE.—The evidence offered by various investigators of the effects of pilocarpine and jaborandi on bodily temperature is much at variance. Some assert that the temperature is lowered, others that it is increased, and others that it is primarily increased and secondarily decreased.

Stumpf (*Deutsche Archiv. f. Klin. Med.*, 1875, XVI, s. 255) states that with the appearance of sweating the temperature was lessened. Ringer (*Lancet*, 1875, I, p. 157) found in every one of eighteen cases a fall of temperature of 1.4° F. during the sweating. Sawyer (*Brit. Med. Jour.*, 1875) records the same result.

On the other hand, Weber (*Centralblatt f. Med. Wiss.*, 1876, s. 769) observed an increase, which seldom exceeded 0.5° to 1° C. Pilicier (*Ibid.*, 1876, s. 428) notes that there is a period of increase for about a half hour, during which the rise amounted usually to 0.2° to 0.5°, sel-

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dom as much as 1° C. This was followed by a fall of 0.3° to 1° C. during the subsequent two or three hours. Riegel (*Berliner klin. Woch.*, 1875, s. 86) and Rabuteau (quoted by Greene, *loc. cit.*) and Scotti (*Berliner klin. Woch.*, 1877, s. 141) also have recorded a rise. Robin (quoted by Greene, *loc. cit.*) found that an increase amounting to 1° or 2° C. began with the appearance of perspiration and continued through the sweating stage, after which the temperature fell. Greene (*Philadelphia Medical Times*, VI, 1875–76, p. 49) states that the temperature was increased, and rose until the maximum actions of the drug were obtained. The increase in one case amounted to 3.4° F.

A study of the above contributions leads to the belief that pilocarpine and jaborandi primarily increase bodily temperature and secondarily depress it, and that in those cases in which only a fall of temperature was recorded the observations were not made early enough, or the doses were too large, or the effects unusually severe.

Jaborandi remarkably increases the amount of sweat, and as sweating under ordinary circumstances tends to increase the dissipation of heat, and thus lower bodily temperature, it is generally believed that the fall of temperature caused by this substance is dependent largely, if not wholly, upon the abstraction of heat by the increased evaporation of water from the skin. But that this theory is untenable is indicated in some of the observations above referred to, in which, during the stage of sweating, a rise of temperature was noted, and in which the temperature fell after the period of sweating had been passed. The fact that the temperature may be increased during the stage of sweating proves that some other factor is involved. It is quite possible, however, that during the stage of depressed temperature, when sweating is present, the latter favors the decline, even though not in the main responsible. These facts clearly show that there is no positive connection between the alterations of bodily temperature and the increase in the secretion of sweat.

To determine how the heat processes are affected to bring about the alterations in temperature, the following experiments were performed. The calorimetrical methods employed were those described by me in the January, 1890, number of the MAGAZINE. Chemically pure pilocarpine, free from jaborine, was used. The doses were given subcutaneously, and of a one-fourth of a 1 per cent. solution in distilled water. The heat units are in kilogramme-degrees, and the temperature records in the Centigrade scale. The following are the condensed records:

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EXPERIMENT 1. Dog; weight, 5.668 kilos. Dose, 0.0005 gramme per kilo.

	Hourly Heat Production.	Hourly Heat Dissipation.	Rectal Temperature.			Mean Room Temperature.
			beginning of hour.	ending of hour.	gain or loss (+ or —).	
Hour before pilocarpine	13.275	13.275	38.82	38.82	± 0.00	22.1
First hour after pilocarpine . .	14.575	13.850	38.82	38.98	+ 0.16	22.4
Second " " " . .	8.048	9.725	38.98	38.61	— 0.37	23.8
Third " " " . .	7.361	7.950	38.61	38.48	— 0.13	24.5
Fourth " " " . .	7.090	7.090	38.48	38.48	± 0.00	24.1
Fifth " " " . .	6.975	6.975	38.48	38.48	± 0.00	23.6

EXPERIMENT 2. Dog; weight, 13.265 kilos. Dose, 0.0006 gramme per kilo.

Hour before pilocarpine	25.412	24.775	38.73	38.79	+ 0.06	23.4
First hour after pilocarpine . .	27.658	24.475	38.79	39.09	+ 0.30	23.3
Second " " " . .	13.520	18.825	39.09	38.59	— 0.50	23.5
Third " " " . .	17.296	14.325	38.59	38.87	+ 0.28	23.1
Fourth " " " . .	10.715	12.625	38.87	38.69	— 0.18	22.5
Fifth " " " . .	16.459	13.125	38.69	38.91	+ 0.22	22.1

EXPERIMENT 3. Dog; weight, 7.143 kilos. Dose, 0.0012 gramme per kilo.

Hour before pilocarpine	19.436	21.150	39.02	38.72	— 0.30	23.1
First hour after pilocarpine . .	25.235	22.550	38.72	39.19	+ 0.53	22.7
Second " " " . .	9.186	11.300	39.19	38.82	— 0.37	24.4
Third " " " . .	12.384	12.555	38.82	38.79	— 0.03	24.3
Fourth " " " . .	11.300	13.300	38.79	38.44	— 0.35	22.3
Fifth " " " . .	12.733	12.875	38.44	38.42	— 0.02	22.0

EXPERIMENT 4. Dog; weight, 12.13 kilos. Dose, 0.0002 gramme per kilo.

Hour before pilocarpine	21.120	22.575	38.34	38.19	— 0.15	21.1
First hour after pilocarpine . .	39.093	26.575	38.19	39.48	+ 1.29	21.2
Second " " " . .	20.483	15.825	39.48	39.96	+ 0.48	21.1
Third " " " . .	6.861	15.400	39.96	39.08	— 0.88	22.0
Fourth " " " . .	12.721	16.700	39.08	38.67	— 0.41	22.8
Fifth " " " . .	16.406	18.250	38.67	38.48	— 0.19	23.2

EXPERIMENT 5. Dog; weight, 10.317 kilos. Dose, 0.006 gramme per kilo.

Hour before pilocarpine	25.562	25.975	38.18	38.13	— 0.05	21.0
First hour after pilocarpine . .	39.123	29.300	38.13	39.32	+ 1.19	20.5
Second " " " . .	15.295	13.975	39.32	39.48	+ 0.16	19.1
Third " " " . .	14.120	13.625	39.48	39.54	+ 0.06	20.4
Fourth " " " . .	17.165	17.000	39.54	39.56	+ 0.02	19.8
Fifth " " " . .	13.819	16.625	39.56	39.22	— 0.34	19.8

The results of these experiments are very uniform, positive and exceedingly interesting. The doses varied in the different experiments from the small doses in Experiments 1 and 2, which were just sufficient to produce well-defined effects, to those in Experiments 4 and 5, in which the actions were profound. In every case the injection of the

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drug was followed by a rapid and distinct rise of temperature. This increase was of variable duration, its persistency being dependent upon the size of the dose. In Experiments 1 and 2, in which the doses were practically the same, the normal was reached during the second hour; in Experiment 3, in which the dose was larger, the normal was not regained until the fourth hour; in Experiment 4, the dose being double the size of that in the preceding, the temperature rose during the two hours after the injection, showing a gain of 1.77° C.; it then declined, but even at the end of the fifth hour was 0.28° C. above the normal; and in Experiment 5, in which the dose was still much greater, the temperature continued rising for four hours and fell during the fifth hour, at the end of which time it was 0.89° C. above the normal.

The increase of bodily temperature was always followed by a fall below the normal, which was more and more marked in proportion to the dose, and was generally even more decided and more persistent than the previous rise. After large doses, as in Experiments 4 and 5, the subsequent fall of temperature may amount to 2° or 3° or more. In Experiment 4, eighteen hours after the termination of the observations above recorded, the temperature was 2.11° below the normal, and in Experiment 5 the temperature at the same time was 2.4° below the normal.

From these observations it is apparent that pilocarpine causes a primary rise of temperature and a secondary fall, and that the degree and persistency of these alterations depend upon the size of the dose. To what actions are these effects due? Are they dependent upon changes in heat production or in heat dissipation, or in both? A cursory examination of the records will be sufficient to convince that both the increase and decrease of temperature are essentially the result of similar actions on the activity of thermogenesis—in other words, the increase of temperature is due to an increase of heat production, and the decrease to a decrease of heat production. It is obvious that sweating during the stage of increased temperature is antagonistic to the effects produced by the action on the thermogenetic centres, whereas during the stage of depressed temperature it is favorable, so that the fall of temperature, while being due essentially to a depression of heat production, may doubtless be contributed to by the loss of heat caused by the sweating. It is also apparent from some of the records that a diminution of heat dissipation may take part in the rise of temperature after the first hour.

In Experiment 1 the rise of temperature at the end of the first hour after the injection amounted to 0.16°. This was followed by a rapid fall to a point 0.21° below the normal, then by a slight decline, and subsequently by a continuation at a point 0.34° below the normal

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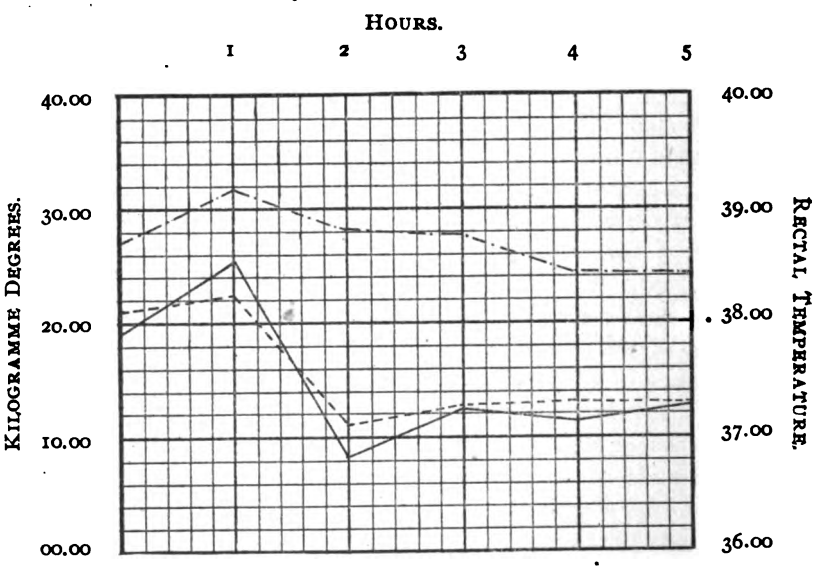
during the fourth and fifth hours. The changes in heat production were identical in character, which was increased during the first hour, considerably decreased during the second, decreased a little more during the third hour and practically not altered during the fourth and fifth hours. The alterations in heat dissipation closely follow those in heat production, the changes in temperature being dependent upon the excess or deficit of heat production over heat dissipation.

In Experiment 2, in which the dose was practically the same, the results were, in general characters, almost identical.

In Experiment 3 the dose was sufficient to cause marked salivation, diarrhea, weakness and other evidences of a strong action. The



The curve of heat production is recorded by the unbroken line (———); that of heat dissipation by the broken line (- - - -); and that of rectal temperature by the broken and dotted line (— · — · —).

effects on temperature and heat production were much more decided than in the previous experiments, and may be taken as a fair representation of the typical alterations produced by a full dose. These records placed in diagrammatic form (see Chart) present with great clearness the changes in temperature, heat production and heat dissipation, and their relations. By following the temperature curve in the upper part of the figure it will be seen that during the first hour the temperature rose 0.53°; during the second hour it fell 0.37°, remaining above the normal 0.10°; during the third hour there occurred a slight decline, the temperature still remaining above the normal 0.07°; during the

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fourth hour the temperature fell 0.28° below the normal; and during the fifth hour suffered a further fall of 0.02°.

Heat production during the first hour was increased about 22 per cent; during the second hour it was decreased to less than one-half of the normal; and during the three remaining hours continued at about one-third less than the normal.

Heat dissipation was slightly increased during the first hour, but not sufficiently to compensate for the increase in heat production, with the effect of increasing bodily temperature; during the second hour it fell to a point far below the normal, following the curve of heat production, but not reaching as low a level, here again failing to compensate for the change in heat production, so that now the lessened heat production made itself manifest in a fall in the temperature curve; during the following hours heat dissipation, although greatly lessened, continued slightly in excess of heat production, so that the temperature declined. It is apparent that the changes in heat dissipation are entirely subsidiary to and essentially dependent upon those of heat production, and doubtless indicate an effort of the economy to compensate for the actions on thermogenesis.

In Experiments 4 and 5 the essential features of the results are the same. In these the doses were much larger, especially in the last experiment, and the effects consequently more intense. In both the temperature was increased markedly during the first hour (in Experiment 4, 1.29° and in Experiment 5, 1.10°), and further increased during the second hour. During the following hours in Experiment 4 the temperature fell, so that at the end of the fifth hour it was but 0.29° above the normal. In Experiment 5 the temperature continued to rise during the third and fourth hours, and during the fifth hour slightly declined, at the end of the hour being 1.09° above the normal. Eighteen hours later the temperatures in both experiments were far below the normal, as before stated.

Heat production in Experiment 4 was greatly increased during the first hour; it was about normal during the second hour, being in excess during the early part of the hour, and in deficiency during the latter half; and during the third, fourth and fifth hours it was normal. The relations of the curves of heat production, heat dissipation and temperature are the same as in the previous experiments.

Heat production in Experiment 5 was increased during the first hour, but decreased during the subsequent hours. In this experiment the rise of temperature during the second, third and fourth hours seems to be due in part to the enormous reduction in heat dissipation. Notwithstanding the marked reduction of heat production during these hours, heat dissipation was decreased even slightly more. It is,

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therefore, clear that after excessive doses the temperature may, in part, be increased by the profound diminution of heat dissipation.

The last two experiments are especially interesting in the fact that during the second, third, fourth and fifth hours the temperature was *above* the normal, yet heat production, excepting during the second hour in Experiment 4, was greatly *below* the normal—a striking illustration of the uncertainty of the relations existing between bodily temperature and the activity of tissue metamorphosis.

The results of the above observations justify the following conclusions:

(1) Pilocarpine first increases and then decreases bodily temperature.

(2) Heat production and heat dissipation are first increased and then diminished. Heat production is the process primarily affected, the alterations in heat dissipation following and being dependent upon the effects upon heat production, excepting after very large doses, when heat dissipation may be depressed even more than heat production during the stage of lessened heat production.

(3) The alterations in temperature are dependent essentially upon the actions on heat production, but may be affected by sweating, and after very large doses by alterations in heat dissipation.

The primary increase of temperature is due primarily to an increase of heat production, but after very large doses this increase may be exaggerated and continued by a diminution of heat dissipation which is greater than the depression of heat production.

The decrease of bodily temperature is due to a diminution of heat production, but may, in part, be due to sweating.

(4) The actions on the process of heat production are so much more potent in their effects on temperature than those on the sweat glands, that it is doubtful if the latter ever plays an important part in the temperature alterations.

(5) Bodily temperature may be increased during the stage of diminished heat production, owing to the greater depression of heat dissipation.

(6) The amount of increase and decrease of temperature and the duration of each of these periods are essentially in direct relation to the dose.

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CLINICAL DEPARTMENT.

UNIVERSITY HOSPITAL.

[Service of DR. JOHN ASHHURST, JR.]

THE following is a report of a few of the cases treated in the surgical wards of the University Hospital during my service as resident surgeon in the winter of 1891–92:

I.—SARCOMA OF THE UPPER JAW; EXCISION; RECOVERY, FOLLOWED BY RECURRENCE AND METASTASIS.

C. H. M., male, aged 67, was admitted to the hospital with a tumor of the left upper jaw, which, by pressure upon the eyeball, was causing some disturbance of vision. The growth was first noticed by the patient two months prior to his admission to the hospital. He felt some pain in the jaw before the growth appeared, and this continued with varying severity until the time of the operation. The tumor was growing very rapidly, and from its growth into the mouth was beginning to interfere with speech and deglutition. Upon examination the tumor was found to be limited to the upper jaw, and not adherent to the skin. There was no apparent glandular involvement.

Operation.—The first step of the operation, viz., the extraction of the upper central incisor, had already been effected by nature. The soft palate on the affected side was separated from the hard palate by a transverse incision. Then a longitudinal incision was made through the centre of the roof of the mouth, after which a groove was cut in the alveolar process with a saw. The external incision was then made through the centre of the upper lip, around the ala of the nose, following close to the nose to a point a little higher than the floor of the orbit, thence below the eye to the prominence of the malar bone. This flap was dissected up and the bone forceps applied to the palate, the malar bone, and the inner angle of the orbit respectively. The bone was removed, the wound sutured, and the ordinary antiseptic dressings applied. Ten days after the operation the external wound was entirely healed and the patient left the hospital. The scar produced was in the natural folds of the skin, so that the only disfigurement was the depression in the cheek.

One month later the patient was seen, and there was an enlarged lymphatic gland below the left jaw. In another month this was still larger, the cheek filled out to its natural size with the new growth, and there were small nodules scattered over the legs and body. The patient was rapidly failing, and nothing more was heard from him.

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2.—EPITHELIOMA OF THE PALATE; EXCISION OF THE GROWTH; RECOVERY.

Daniel P., aged 57, painter, presented himself with an epithelioma of the hard palate, limited to one side. The growth had the ordinary appearance of epithelioma, and had existed eight months previous to his admission to the hospital. The operation performed was an excision of the portion of the jaw affected. To effect this more readily the cheek was opened for about two inches backward from the corner of the mouth. The soft tissues were now divided around the tumor, and then with bone forceps the alveolar process of the superior maxilla was cut anteriorly and posteriorly to the tumor, and the growth removed. The wound in the cheek united by first intention, and the patient left the hospital ten days after the operation.

3.—TWO CASES OF CYST OF THE TIBIA.

Allen D., aged 20, engineer, was admitted to the hospital with a tumor of the left tibia. For eight years he had felt more or less pain in the limb. This pain, which at times was very severe, came in paroxysms, lasting from twelve to forty-eight hours, with intervals between them varying from two to four weeks. Five years ago this leg began to swell just below the knee, and this swelling continued increasing a little in size until the operation.

Operation.—A curved flap, which included all the soft tissues, was raised, and a portion of the bone thus exposed was cut away, revealing a large cyst of the tibia. The anterior wall of the cyst was removed and the remaining cavity thoroughly scraped. It was then packed with bichloride gauze, dressed antiseptically, and the limb placed in a fracture box, with the additional support of a posterior splint of binder's board. The bone forming the posterior wall of the cyst was very thin, and consequently there was considerable abnormal mobility of the tibia at that point. The fracture box was continued for three months, when it was replaced by a plaster cast. Six months after the operation there was no abnormal mobility in the leg, though it was still thought prudent for the patient to wear a light cast.

The second case was that of Chas. R., aged 17, weaver. His mother died from a tumor of the breast. With this exception, his family history was good. He was treated in this hospital three years ago for dead bone in the left little toe. At the same time he had pain and swelling in the left knee, which continued about the same until four months previous to his admission to the hospital, when the pain suddenly became more severe, and the swelling more marked. On admission there was considerable enlargement, which was painful on pressure, about the head of the tibia and knee joint. The tumor was thought to be a sarcoma of the tibia, and the patient went under ether with the

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understanding that an amputation was to be performed. An exploratory incision, however, showed it to be a bone cyst. The anterior wall was removed and the remainder of the cavity thoroughly curetted. It was then packed with bichloride gauze, dressed antiseptically, and the limb placed in a fracture box. The cavity filled rapidly, and the patient left the hospital with a useful limb. In addition to the surgical treatment, potassium iodide was given in moderate doses. A microscopical examination of the wall of the cyst, by Dr. Guitéras, showed it to be sarcomatous, undergoing mucoid degeneration.

4.—CONTRACTION OF FINGERS RELIEVED BY TENDON SPLICING.

Violet D., aged 9, was admitted to the hospital with the flexor tendons of the thumb and fingers of the right hand very much contracted. The history of the case, as obtained from the child's mother, was as follows: Nine months previous to her admission to the hospital she sustained a fracture of the elbow joint. In the dressing of the fracture a pad was used on the anterior part of the fore-arm, causing a deep slough, the granulating surface left after the removal of which was three months in healing. The splint was then removed, and the child has not since been able to straighten her fingers. The mother consulted several surgeons, the most of whom advised a resection of a portion of the bones of the fore-arm. Dr. Ashhurst advised, instead of shortening the bones, lengthening the tendons after the manner suggested by Sporon, Rhoads, Lange, Anderson and Keen.

Operation.—The tendons were thoroughly exposed above the wrist by an incision directly over them. Then each tendon was split in the centre longitudinally for about three inches, opposite halves of the tendons being cut at the ends of this incision. The finger was now straightened and the ends of the divided tendon were sutured together with chromicized catgut. All the flexor tendons of the fingers were thus treated. After the wound was closed and dressed, a straight palmar splint, reaching from below the elbow to beyond the tips of the fingers, was applied. As soon as the wound healed the splint was removed during the day, though still retained at night. Passive motion was now practised in the fingers and wrist, and the patient encouraged to use the hand as much as possible. Three months after the operation the patient was seen, and though the hand was still weak the position of the fingers was good and the strength rapidly increasing.

5.—SUBCUTANEOUS OSTEOTOMY OF FEMUR FOR ANCHYLOSIS OF HIP JOINT.

M. McA., aged 30, miner, was injured in July, 1891. The roof of a mine caved in on him, causing a fracture of both femora and the left scapula. The patient came to the hospital in January, 1892. His attending physicians had diagnosed the case as one of luxation of both

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femora, and had made every effort to reduce them. Failing in this, they put him to bed with feet and legs elevated and the thighs flexed on the abdomen. He was kept in this position eleven days, when his legs were gradually lowered. Eighteen days after injury he was allowed to sit up in a chair, and on the twentieth day he was placed on crutches. He was, however, unable to walk, and has not walked since, but has moved about in a rolling chair. Examination on admission to the hospital showed firm anchylosis of the left hip joint, with contractions of the tendons about the knee and hip, so that the leg was flexed on the thigh and the thigh on the abdomen to almost right angles. The right thigh was not flexed quite as much as the left.

The operation performed for the relief of this condition was tenotomy of the adductor and ham-string tendons in both legs and subcutaneous division of the left femur below the lesser trochanter. A puncture was made on the outer side of the thigh and an Adams' saw introduced flatwise in front of the bone, which was divided from before backward. Extension was applied to both legs with sand bags on either side of each limb and one across the knees. The weight was taken off the knees in about three weeks, but the extension was continued six weeks. There was then firm union, and the legs were in very good position. He was now encouraged to walk on crutches, a feat which at first was very difficult for him from the fact that he had been so long in a rolling chair.

6.—REULCERATION IN THE CICATRIX OF A CHANCRE.

A. K., aged 52, gave a very clear history of syphilis twenty-six years ago. He said he had had soft chancres two or three times since, and each time they were solitary. He came to the hospital with a sore on the frenum, which was superficial, with sloping edges and with no induration. The period of incubation was uncertain. The patient thought he had contracted the sore ten days before its appearance, but it was possibly only two days. There was moderate general lymphatic enlargement. Dr. Ashhurst considered this a case of reulceration in the site of the original chancre, due to irritation not necessarily of a venereal character. The sore had been cauterized twice previous to his admission to the hospital. It was now dressed with powdered iodoform and lint saturated with laudanum and water, equal parts. Subsequently it was touched with a solution of silver nitrate, gr. iv. ad. f℥i. Internally he was given the pil. ferri iodid. and a pill composed of quinia, gr. ij., and opium, gr. ⅙, three times daily. The sore healed in six weeks with no further symptoms.

PARK WEED WILLIS, M.D.

SEATTLE, WASHINGTON.

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EDITORIAL.

THE USE OF IODOFORM IN LOCAL TUBERCULOUS AFFECTIONS.

ALTHOUGH iodoform has been extensively employed in local tuberculosis, and very favorably reported upon by European writers generally, particularly by Continental surgeons, it has been used here, but to a very limited extent. With the exception of the work done by Senn, the subject has received almost no attention in this country. The frequency of tuberculous affections, and the satisfactory results of the iodoform treatment, certainly warrant a fuller trial of the remedy at the hands of American surgeons.

Much has been written upon the manner in which iodoform acts upon tuberculous tissue, but the question still remains *sub judice*. König believes the beneficial effect to be due to the formation and rapid contraction of connective tissue at the seat of injection. Mosetig von Moorhof, von Büngner and others attribute to iodoform a true antituberculous effect. De Reyter thinks it has a marked antiseptic effect when it comes in contact with the tissue fluids at the temperature of the body. On the other hand, Ch. Heyn and Rokild Krosing deny any such action.

Although the treatment has been somewhat empirical, the practical results are not the less important. Krause reports a cure in 50 per cent. of the cases of cold abscess treated by iodoform injection. In a large experience in Trendelenburg's hands, 68 per cent. of all cases are said to have been favorably influenced by this treatment. de Vos reports that 72 per cent. of the cases of joint tuberculosis treated by this method at the clinic and polyclinic at Leyden were entirely cured. Brodnitz has given his experience in the use of iodoform. Eighty-seven cases are referred to, a large portion of which were cured, while still others were much benefited. Billroth says the results obtained by this treatment "far exceeded his expectations." Bruns reports one hundred cases of cold abscess, subjected to the iodoform treatment, with eighty cures. It is needless to multiply examples. Those already given indicate the position iodoform has taken in the treatment of this frequent and troublesome class of cases.

The use of the ethereal solution of iodoform, first recommended by

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Verneuil and extensively employed for a time, has been largely abandoned on account of its irritating nature and the liability to iodoform intoxication. The combinations of iodoform with glycerine and with olive oil are both largely used at the present time, and both seem satisfactory to those employing them. If there is any choice, it perhaps lies with the glycerine mixture. The manner of their preparation and use is identical. As usually prepared, the mixture contains 10 per cent. of iodoform, and this strength seems to meet all requirements.

The proper sterilization of the mixture is a most important matter, as the iodoform does not insure against the presence of microörganisms. To secure this end, the iodoform, in very fine powder—that obtained by electrolysis is best—should be repeatedly washed in bichloride of mercury solution, 1:1000, before use, and the vehicle, whether glycerine or olive oil, should be boiled, care being taken subsequently to prevent contamination of the finished product. These precautions are necessary in order to avoid a "mixed infection," which will surely lead to suppuration, if it has not already occurred.

This treatment has a wide range of application—tuberculous glands, abscesses and sinuses, tuberculosis of bones, joints, etc. In the treatment of tuberculous glands, if softening has not occurred, a few minims of one of the preparations described may be injected with a Pravaz syringe into and around the affected glands. Abscesses may be evacuated by a trocar and the mixture injected, or, as advised by Billroth, incised, emptied, curetted, and the mixture introduced, followed by primary suture. Bone and joint tuberculosis are to be treated by bringing the remedy directly in contact with the diseased tissues.

We do not expect that this method will do away to any great extent with the necessity for operating in this class of troubles, but it does seem to promise a most valuable adjunct to such operative measures as may seem indicated. Brodnitz asserts that the results following the operative treatment of tuberculous bones and joints have considerably improved since the introduction of the use of iodoform.

Such lesions as can be totally extirpated may be much more quickly and radically dealt with by the knife, but where such removal is wholly, or in part, impossible, the iodoform treatment should be employed, either alone or in conjunction with such surgical measures as are indicated.

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THE FOUR YEARS' COURSE OF MEDICAL INSTRUCTION.

We have already called attention editorially, in the last issue of the Magazine, to the four years' graded course which will be inaugurated in the University of Pennsylvania with the opening of the Medical Department on October 2 of this year. This step will be welcomed by that great body of the profession and the public who are interested in the tidal wave of the time, "higher education." Every department of science is making rapid strides. Theory is everywhere being probed to the bottom to determine what truth it may have to warrant its existence.

Our foremost medical teachers have realized for some time that it was impossible to satisfactorily compress into a three years' course the many departments of medical science. Not only have new branches been developed, but every department of medicine has expanded so wonderfully during the past decade or two that the whole system of medical education has been changed.

The value of a thorough preparation has already been dwelt upon (See University Medical Magazine, Vol. V, pp. 725 and 794). It seems to us no stronger argument could be given than the advanced standing which the University graduates have always held in competitive examinations. The four years' course must still further emphasize this relation. But the benefits will not cease with the securing of the diploma. In his daily work, in the competition which he must meet, the capital thus acquired will serve the practitioner well, and he will secure the confidence and respect to which his skill and knowledge entitle him as well as that more substantial acknowledgment which these will bring.

While there is much in the profession to deplore, for a considerable part of this we are directly responsible. Every physician has an influence in his community, and as he has the interest of his profession at heart, he should exercise discrimination in advising the study of medicine, but having sanctioned this course it is then his duty to see that the student places himself where he will be properly instructed, that he may have the assurance of success that will come from the knowledge that it is at least deserved, that he may be a credit to the profession and a benefactor to humanity.

If the physicians of the country will heartily endorse the four years' course, a condition of the profession will prevail in the next decade that will be quite worthy of the honored name we bear; and as the public eye is beginning to exercise a keen discrimination, legislation to keep out inefficient practitioners will have become almost, if not entirely, unnecessary.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

Nitrate of Strychnine in Alcoholism.

McConnell (*New York Medical Journal*, June 3, 1893) has used hypodermic injections of one-twentieth of a grain of the above drug in twenty-five cases of alcoholism. He concludes: Simultaneously with the use of the remedy the craving for alcohol in inebriates diminishes, and in a few days is completely gone. There is a gradual restoration to physical and mental health, but as most of the cases treated relapsed in from one to eleven months the inhibiting power of the remedy is not permanent. While we have in strychnine a true antagonist to the action of alcohol, and one that will counteract its effects, the inebriate still requires aid which can scarcely be expected of drugs.

A New Symptom of Influenza.

Shelly (*Semaine Médicale*, April 26, 1893) has observed a peculiar vesicular eruption on the soft palate in influenza which he considers almost pathognomonic. The eruption consists of little vesicles, like sago grains, of from .5 to 1 mm. in diameter, and situated chiefly on the soft palate, though they may appear on other parts of the pharyngeo-buccal cavity. While these little vesicles may occur in other diseases than influenza, they are chiefly seen in this disease, and are an early symptom. Of forty-eight children observed with this eruption, forty-seven had other marked signs of influenza. On the other hand, of seventeen children in which the symptom failed, only five were seized with influenza.

The Pathology and Treatment of Exophthalmic Goitre.

Thomson (*New York Medical Journal*, June 3, 1893) reports eight cases of Graves' disease as a text for his view of the pathology of the disease. He believes there is no organic lesion in the nervous system, but that the symptoms are due primarily to some specific derangement of the digestive system. His treatment of the disease is based upon this supposed relation to digestive disorders. In the first place, meat diet in these patients should be as much restricted as the starch diet is in diabetics. Fresh undiluted milk is not allowed. He uses as a diet fermented milk exclusively. Medicinally, he begins with a mercurial purge, and follows this with salol, benzoate of soda and bismuth, or ten grains of salicylate of bismuth and two of naphthol. As a vaso-motor tonic he relies chiefly upon ten-drop doses of strophanthus half an hour before meals.

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Congenital Cirrhosis of Liver.

H. Neumann (*Berliner klinische Wochenschrift*, May 8, 1893) reports a case of congenital cirrhosis of the liver. The patient was a girl of 4 months, who had suffered from birth with jaundice. The skin and all mucous membranes were deep yellow, the general condition was bad, the child took little nourishment and passed infrequent stools without the slightest yellow color. Treatment was of no avail. Liver and spleen were both enlarged. After death all organs were found normal except spleen and liver, which were enlarged and hard; the gall bladder was empty. Microscopic examination showed a cirrhotic condition of the liver tissue. The gall ducts were patulous, but empty. The parents were syphilitic, and the mother also tuberculous.

Puncture of Skull in Hydrocephalus.

Prof. Oscar Wyss (*Correspondenz-Blatt für Schweizer Aerzte*, April 15, 1893) writes in favor of puncture of the skull in the treatment of hydrocephalus. In summing up the argument he gives the advantages and disadvantages as follows:

Advantages.—(1) Cessation of convulsions. (2) Quieting of the restless, screaming patient. (3) Good influence on bodily development. (4) Improvement or saving of the psychic functions. (5) Restoration of sight when lost.

Disadvantages.—(1) Formation of a hematoma. Very rare, and usually avoidable. (2) Infectious meningitis, avoidable by asepsis. (3) Meningitis through pressure; gangrene. Occurs also without puncture, and is avoidable by drawing off small quantities at a time. (4) Collapse. Never occurs in dangerous degree under favorable conditions.

The operation is indicated: (1) In acute meningitis with severe pressure symptoms. (2) In later stages of non-tubercular meningitis. (3) Hydrocephalus of congenital syphilitic origin. (4) By enlargement of head following meningitis; here to be often repeated. (5) By loss of important functions, as sight, in hydrocephalus.

The Rectal Administration of Salicylate of Sodium.

Erlanger (*Deutsches Archiv. für klinische Medicin*, Vol. LI, parts 2 and 3, 1893) was led to use this drug by enemata, because of its frequent interference with the general condition of the patient when administered by the mouth. He used it in twenty-five patients, and made seventy-eight observations. The patients were suffering from acute rheumatism and all did well upon this method of treatment. He formulates the following rules for its administration:

I and II.—The rectum must be cleared of fecal masses preferably by warm water before the medicinal injection is used. Considerable time is allowed to elapse between the two injections. (1) The injection must be at the temperature of the body. (2) The enema is prepared with from ninety to one hundred and twenty grains of salicylate of sodium, three fluid ounces of water, and twenty-five minims of tincture of opium. This is given once daily. (3) The enema is used in a three-ounce syringe, with a long soft gum tube attached to the nozzle. (4) The gum tube is introduced about eight inches in the bowel. (5) In order to retain the enema the syringe is filled with air, and pressure made with this through the tube after the injection is given and before the tube is removed. (6) The less intelligent patients must be fully impressed that the medicinal injection is to be retained and not expelled, as was the injection of water.

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Salophen.

Osswald (*Deutsche medicinische Wochenschrift*, April 20, 1893) has used salophen in various diseases—acute rheumatism, chronic rheumatism, in headache, etc. He concludes that it is a drug which undoubtedly possesses many of the advantages of the other saline preparations. It is tasteless, odorless and non-hygroscopic. It has no ill effects in doses as high as two drachms daily. It is less active than salicylate of sodium, because it contains less salicylic acid. It may be advantageously used in the following conditions: In mild cases of acute articular rheumatism, or as a temporary substitute for salicylate of sodium when the latter disagrees. In weak individuals it may be given, bearing in mind its less activity. Also in persons who have an idiosyncrasy against sodium salicylate. He especially recommends it in neuralgias of all sorts, especially in hemicrania and headaches in the course of chlorosis and anemia. In severe cases of articular rheumatism salicylate of sodium will still hold its place.

A New Human Parasite.

Miyake and Scriba, of Tokio, Japan, publish the following in the *Berliner klinische Wochenschrift*, No. 16, 1893: A man, aged 37 years, applied at the polyclinic complaining of hematuria. When 25 years old the patient had suffered from hematuria for some days; later, for seven months, and the present attack had lasted for seven months. The man was very anemic. The urine was red, and deposited, on standing, a light red coagulum at the bottom, like that of fibrinuria, having intermixed a number of pure blood clots. Examination of the urine showed the presence of a number of an unknown species of acarus, together with a great number of the eggs. The parasites disappeared when the hematuria ceased. They have named the organism Nephrophages sanguinaris. It resembles most closely the dermatocoptes communis, but has very large eyes. The male and female are both about one-fourth the length of sarcoptes hominis (the itch mite) and about one-third as broad.

Blood-Changes in Syphilis.

Neumann and Konried (*Wiener klinische Wochenschrift*, No. 19, 1893) have made a study of the blood in all stages of syphilis with the following results:

(1) The hemoglobin is diminished in the primary stage from 15 to 30 per cent. It remains diminished during the first part of the eruption and in early treatment, but as the mercurials are pushed it rapidly regains its normal percentage.

(2) Older contracted cases of secondary syphilis have only from 45 to 75 per cent. of hemoglobin. The anti-syphilitic treatment in these cases increases the hemoglobin, but does not raise it to normal.

(3) The late forms of tertiary syphilis are characterized by a low hemoglobin percentage, which improves under mercury.

(4, 5, 6) The red blood corpuscles are not diminished in the primary affection, but when constitutional symptoms appear they are reduced one-third. Anti-syphilitic treatment brings them back to normal. Non-treated secondary forms have about one-third the normal amount, which become normal under treatment. In the tertiary stage there is some diminution. The number becomes restored by treatment.

(7) The number of white corpuscles are diminished in proportion to the diminution of the red corpuscles.

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Jambul in the Treatment of Diabetes Mellitus.

L'Union Medicale (April 4, 1893) collects the results of the various reported experiments with jambul in the treatment of diabetes mellitus. The results are very contradictory, but seem to show that in milder cases, where the glycosuria persists in spite of diet, jambul may cause a decided lessening of the sugar, and improvement in general health.

Euchlorine in Diphtheria.

Ellis (*British Medical Journal*, May 13, 1893) has used a solution of chlorine gas in 200 cases of diphtheria with excellent results. The solution is made by putting twenty to thirty grains of chlorate of potash in a *dry* eight-ounce bottle, and pouring upon it ten minims of hydrochloric acid. The bottle is filled with water after all the gas is evolved, and the whole well shaken. The mixture is made palatable by the addition of glycerine. It may be diluted for very young children. If the child is too young to gargle, a few drops may be given every half hour. It is most efficacious when used as a spray.

The Treatment of Gastric Ulcers and the Consequent Symptoms of Irritation.

Prof. Wilhelm Fleiner (*Münchener medicinische Wochenschrift*, May 2, 1893) writes concerning the results of injections of large quantities of bismuth subnitrate through the stomach tube in case of ulcer, and the various painful or intolerant conditions of the stomach arising from ulcer or cancer. The indications are :

(1) In all sensitory, motor or secretory signs of irritation of the stomach in which simple lavage is not sufficient, as in old ulcers, ulcerating carcinoma or hemorrhagic erosions.

(2) As a specific remedy in gastric or duodenal ulcer.

The bismuth is to be used daily at first, then with decreasing frequency. The dose is 150 to 200 grains suspended in lukewarm water. When the stomach tube cannot be used, the same may be drunk from a tumbler. It is contraindicated where there is much decrease of HCl., except in ulcerating cancer and hemorrhagic erosions.

SURGERY.

UNDER THE CHARGE OF

J. WILLIAM WHITE, M.D.,

ASSISTED BY

G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

Cure of Aneurism by Bacelli's Method.

Pritchard (*Medical Record*, May 27, 1893) reports a case in which an aneurism of the descending aorta was treated by this method. It had passed by pressure absorption through the body of a vertebra and two ribs, and formed a tumor between the spine and scapula. A watch spring, 2 mm. broad and 37 ctm. long,

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with a spiral, 5 ctm. in diameter, having been boiled in hydrochloric acid to form a film of ferric chloride to start the coagulation, was introduced through a small slit in the sac. The slit was then closed. The subjective symptoms were relieved. One month later the tumor was found by exploratory puncture to contain no blood, and the pulsation had decreased in extent and intensity. Improvement at time of report was steadily progressing.

Tuberculosis of the Prostate.

Marwedel (*Centralblatt für Chirurgie*, April 29, 1893) says a third of all cases of tuberculosis of the prostate give no symptoms. In others they simulate catarrhal prostatitis, with slight irritation of the bladder. Occasionally, pus and semen discharge through the urethra. Lastly, abscesses form, and may rupture into the bladder, urethra or rectum.

Palpation of the prostate seldom gives any definite result. Tuberculosis remaining localized to the prostate is very rare; more commonly, it early involves the bladder, seminal vesicles and testicles.

In the treatment of this condition iodoform emulsion should be injected into the bladder. When abscesses have formed a perineal prostotomy may be done, and the cheesy masses removed by the curette.

Pneumotomy for Putrid Bronchitis and Cavity of the Upper Lobe of the Left Lung.

Hofmoke (*Wiener klinische Wochenschrift*, 1893) reports the case of a man, aged 25, who had suffered from bronchitis for four years. The expectoration was very profuse and fetid. Physical examination of the lungs revealed dulness, diminished breathing, and subcrepitant râles.

Owing to the patient's wretched condition, and the inefficacy of medical treatment, an operation was undertaken, having for its object the opening of a suspected cavity with the Paquelin cautery. An attempt was made to accomplish this without resection of the ribs, and for this purpose an incision 10 centimetres in length was made in the second left intercostal space. The lung, which was adherent to the pleura, had a grayish appearance, and on palpation had the consistence of liver tissue.

An attempt was made to reach the cavity by pushing a grooved sound through the lung tissue, and enlarging it with a Paquelin, but it was not possible to reach the cavity in this manner.

The wound was tamponed and the patient returned to bed, with the hope that the cavity might burst into one of the canals formed by the sound. As this hope was not realized, a second operation was performed.

The cutaneous incision was enlarged and the left third rib resected, beginning 2 centimetres from the sternal margin. Punctures were made in different directions with a sharp-pointed Paquelin. At the fourth attempt the cavity was reached, and was followed by an escape of air and fetid sputa. While endeavoring to enlarge the canal with dressing forceps a profuse hemorrhage occurred. By immediately tamponing the wound with iodoform gauze, and the hypodermic administration of ergot, the hemorrhage was arrested and the patient experienced no bad effects. The sputa gradually became less and less, and the slight fever hat had been present disappeared rapidly. The patient entirely recovered.

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A New and Positive Method of Bladder Examination.

In the *Medical Record* of March, 1893, Otis K. Newell suggests that in using the cystoscope the examination in difficult cases will be much facilitated by introducing a finger in the rectum and pressing the vesical wall inward. The bladder wall, by this procedure, can readily be brought close to the window of the cystoscope and slight changes more readily noticed and more satisfactorily examined. The projection of the bladder wall made by the finger is quite marked. The thickness and consistence of the bladder wall can also be more surely estimated. This mode of examination is particularly applicable to the base of the bladder where the largest proportion of vesical trouble is to be found.

Europhen in Venereal Practice.

Kopp (*Therapeutische Monatshefte*, 1893) has employed europhen in nineteen cases of chancroid with very satisfactory results. In five cases the ulcers were first curetted, and then covered with a powder consisting of one part of europhen to three parts of boracic acid. In the remaining fourteen cases the sore, after being cleansed with sublimate solution, was dusted with europhen in substance, or with equal parts of boracic acid. This dressing was renewed two or three times daily, and effected a cure, on an average, in seventeen days. Two cases of ulcerating chancroidal buboes were observed in which, after curetting and disinfection, europhen and boracic acid were applied, and a cure obtained in sixteen and twenty days respectively.

In seven cases of sympathetic suppurating buboes the treatment consisted of incision, curetting, disinfection, and the application of tampons impregnated with europhen and boracic acid one to five. Recovery took place rapidly without inflammatory reaction.

Trochleaform Resection of the Elbow Joint; Hoffa's Operation for Congenital Luxation of the Hip.

In the *Bulletin et Mémoires de la Société de Chirurgie*, February, 1893, will be found a report by Denucé of two interesting joint cases. The first was a resection of the elbow joint for tubercular arthritis in a child aged 10 years. The extremities of the coronoid and olecranon processes were removed, the abscesses and sinuses on the anterior portion of the joint curetted and mopped with chloride of zinc, 1 : 10, and the lower end of the humerus resected. Its surface was then rounded off and a cavity gouged in it posteriorly for the reception of the olecranon. At the end of three months the case was cured, with almost perfect extension and flexion.

The second patient was a girl, 5 years old, with congenital luxation of the left hip, the ascent of the femur being about three centimetres. The shortening was becoming more marked. An incision seven centimetres long was made parallel to the axis of the great trochanter, and going three centimetres above it. The fibres of the gluteus maximus were parted and the joint capsule exposed. The head was found flattened from before backward, and the round ligament and neck of the femur were absolutely lacking. The acetabulum was gouged out, the muscles attached to the upper extremity of the femur loosened and the head replaced in its proper position. The cartilaginous insertion of the muscles was sutured in place, and the capsule closed with catgut and a plaster-of-Paris bandage, with extension applied.

The subsequent results were very satisfactory.

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The Treatment of Hemorrhoids by Electrolysis.

Bacon (*International Journal of Surgery*, April, 1893) employs the following method, which in all of his cases caused a decided decrease in the tumors, without secondary hemorrhage, sloughing or after-pains. He makes use of an instrument consisting of a long pair of forceps, similar to urethral forceps, insulated with vulcanized rubber, except at a place one-half an inch in length on the face of the blades. By means of a binding screw the forceps can be connected with the positive pole of a battery. The hemorrhoid is seized with the forceps in such a manner as to have the exposed metal of the blades clasp it at its base. The negative pole is connected with a disk or needle-holder, preferably one containing four needles. After grasping the hemorrhoid with the forceps, a few drops of a 4 per cent. solution of cocaine are injected into the tumor. The needles are then pushed into the centre of the tumor, and a current of from five to ten milliamperes turned on. Immediately there will be noticed an escape of hydrogen about the needles, and a decided blanching of the pile. The current should be kept up until the tumor becomes a whitish gray, usually requiring from two to five minutes of time.

There are some points necessary to observe in using electrolysis in this class of cases: Thoroughly empty the colon before operating. Disinfect the tumor before introducing the needle. Never use this method in acutely inflamed hemorrhoids. The needles should be boiled before using.

Extirpation of the Wounded Spleen.

Riegner (*Berliner klinische Wochenschrift*, 1893) reports the following interesting case: A boy, 14 years old, fell from a high scaffolding, striking upon the abdomen. When seen the patient was extremely pale, and was vomiting a brownish fluid. The abdomen was markedly distended and very tender, and there was retention of urine. Rupture of one of the large abdominal viscera being suspected, laparotomy was performed, notwithstanding the shocked condition of the patient. The spleen, which was found completely torn through, was removed after ligation of the vessels. Two subcutaneous injections of 300 grammes of a 0.6 per cent. solution of sodium chloride were administered. Twelve days after the operation the sutures were removed. Several weeks later it was found necessary to amputate the left thigh for gangrene, but despite these two severe operations the patient recovered. At the present time there is a general enlargement of the external lymphatic glands, and also enlargement of the mesenteric glands. It would, therefore, appear as if the lymphatics had assumed the function of the spleen. The relation of the white to red corpuscles was at first 1:100; the absolute number of the red corpuscles rapidly increased up to normal; that of the white corpuscles did not decrease.

The Indications for the Transverse Hypogastric Incision.

Albarran (*Annales des Maladies des Organs Genito-Urinaire*, Vol. II, 1893) reports six cases in which he has used this incision. The author sutured the divided muscles together after the operation, and always got primary union. The indications for this incision are:

(1) Where it is necessary to resect a considerable part of the bladder wall.

(2) Operations on the prostate when it is necessary to do a retrograde catheterization.

(3) When the reflected peritoneal layer is fixed to the bladder by inflammatory adhesions.

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ACHILLODYNIA.

ALBERT (*International Journal of Surgery*, April, 1893) calls attention to the chief symptom of the above-mentioned condition, which consists of extreme pain at the place of insertion of the tendo-Achillis during walking and standing, but disappearing when the patient assumes the recumbent or sitting posture. A small indurated mass, apparently due to thickening of the tendon, was found at the site of pain.

SCHULLER has endeavored to explain the group of symptoms on the ground of an inflammation of the small synovial pouch interposed between the Achilles tendon and the posterior surface of the tuberosity of the os calcis. In all the cases observed by him the pain and swelling were in this region, and in several instances pressure on the sides of the tendon revealed the existence of slight fluctuation.

In two of his cases, after resorting without success to other measures, he cut down upon the seat of pain and opened the bursa. The walls of the pouch were reddened and thickened, and a few drops of viscid reddish synovia escaped. In all of the cases observed by Schuller there was developed after a time an outward rotation of the foot, which occasionally tended to become flat-foot. With the exception of one case, gonorrhea was present during or shortly before the development of the affection.

The best results are obtained from injections of a 10 per cent. iodoform glycerine solution under strict antiseptic precautions. A cotton compress was then applied, and complete rest enjoined for eight days.

It was usually found necessary to repeat the injections, and in two cases where they proved ineffective incision was resorted to with success. In recent cases applications of blue ointment, in conjunction with rest, gave satisfactory results.

ROSENTHAL, of Vienna, claims that the condition is due to a small neuroma.

THE PREVENTIVE TREATMENT OF TETANUS.

SIMMONS (*International Journal of Surgery*, April 11, 1893) says it is best to kill the tetanus bacillus while they are yet confined to the point of introduction. The following procedure is recommended in all cases of punctured wounds: All foreign substances are removed, and the wound thoroughly cleansed. With a gold hypodermic needle and an ordinary syringe he injects into the wound, if painful or sensitive, a 4 per cent. solution of cocaine, which is allowed to remain until its full effects are produced. He then draws out what may remain within the wound, and with the same instrument injects the following:

℞. Nitrate of silver . . . . . grs. v.
Water . . . . . f℥ss.

Or,

℞. Corrosive sublimate . . . . . grs. ij.
Carbolic acid . . . . . grs. xv.
Alcohol . . . . . f℥ss.

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THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

The Treatment of Diphtheria with Immunised Serum.

Behring (*Deut. Med. Woch.*, April 27, 1893) has employed in the treatment of thirty cases of diphtheria a substance which he terms "normal diphtherial therapeutic serum." Under this treatment, of the thirty cases, twenty-four recovered and six died, a mortality of 30 per cent. Three out of four cases in which tracheotomy was required recovered—an unusual proportion. The serum was injected under the skin of the chest. In all but one case 22 c.c. were employed in the first injection; subsequently the amount was reduced to 10 c.c. No unpleasant effects were noted.

Pyoktanin in Ptyalism.

Heimann (*Therap. Monatshefte*, February, 1893, and *British Med. Journal*) refers to a case of ptyalism, in which the discharge was somewhat offensive and appeared to flow from a congested upper alveolus. The disease could not be attributed to any of the four acknowledged principal causes—irritations of the buccal or gastro-intestinal mucous membrane, psychical influences, or certain specific fevers. In the course of prolonged treatment with various drugs, iodide of potassium alone produced an effect; this, however, was only a temporary one, and the author therefore ordered the application twice daily to the whole of the oral cavity of a 0.1 per cent. solution of pyoktanin ceruleum. The treatment became unnecessary after three weeks, a perfect cure having been brought about, and no return of the ptyalism had taken place up to the time of writing. The author attributes the condition to an idiopathic causation, or possibly to what he terms a "hydropic diathesis," the same patient having on a former occasion had a profuse hydrops of the bursa patellæ in consequence of a slight blow to the joint.

The Treatment of Diabetes.

Harley (*British Med. Journal*, May 27, 1893), after speaking of the remedies generally employed in diabetes, such as opium, morphine, codeine, hyoscyamus, cocaine, bromide of ammonium and the like, calls attention to the value of croton chloral. He says: "The beneficial effects of croton chloral often surprise me, but I seldom ever give it except in combination with a vegetable narcotic or anodyne. . . . To give a single formula that will answer in every case of a protean disease like diabetes is, however, out of the question, so all I will do is to give the one employed in the case just alluded to. It is the following: ℞. Croton chloral, gr. ½; opii, gr. i.; ext. aloes barb., gr. ⅙; ext. gentianæ, gr. iss. M. One pill to be taken three times a day."

In cases of diabetes resulting from nervous exhaustion, as well as those arising from pancreatic disease, he states that he found extract of nux vomica in ¼ gr. doses three times a day in a croton chloral pill of great service. In such cases remedies tending to improve the general health, notably phosphoric and nitro-hydrochloric acids, are of service. He has found antipyrin and peroxide of hydrogen very useful in one or two instances.

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Camphoric Acid in the Night Sweats of Phthisis.

Howard (*Maryland Med. Journal*, February 18, 1893) has employed camphoric acid in combating sweating in a number of cases of phthisis. He administered the drug at first in daily doses of 20 grs., and subsequently in doses of 10 grs. every two or three days. The results were excellent. Unlike belladonna, the drug led to no disagreeable after-effects. In one case of acute rheumatism camphoric acid completely controlled the profuse sweating.

Jambul in Glycosuria.

Vix (*Therap. Monatshefte*, April, 1893) has employed a fluid extract of jambul bark as a substitute for the fruit in diabetes. This preparation is less costly, more pleasant to the taste, and quite as efficacious though less prompt in its effect.

Two cases of diabetes are described, in which there was no marked polyuria, but in which the amount of sugar excreted was 7 per cent. and 3 per cent. respectively. An anti-diabetic diet was employed during treatment. In the first case 10 drachms a day or 9 ounces in all were sufficient to render the urine normal for two years, when the patient died of influenza and pleurisy. In the second case the disease had lasted three years, and the symptoms entirely disappeared after a few days' treatment.

The results were confirmed in ten other cases, the urine always showing improvement. Vix has never observed any unpleasant effects from the drug, and believes it to be of the utmost value in conjunction with general diabetic and hygienic treatment. He recommends that the drug be given with or after meals, in water or wine sweetened with saccharin, the former being changed to a dark-red color. This coloration is occasionally imparted to the urine and stools.

Chloro-Phenol and Bromo-Phenol in Erysipelas.

Churiloff (*Vratch*, No. 27, and *Lancet*, May 27, 1893) describes the treatment of erysipelas with inunctions of chloro-phenol or bromo-phenol. The antiseptic value of these substances in Siberian plague—*i. e.*, malignant anthrax--and tetanus had been proved by experiments made by him in conjunction with Karpoff, which showed that solutions of them of the strength of only from 1 to 2 per cent. exercise as destructive an influence on the virus of these diseases as a 5 per cent. solution of carbolic acid. He employed 1 and 2 per cent. ointments of para-chloro-phenol and ortho-bromo-phenol made into vaseline. The former of these substances occurs in a crystalline form; it has an odor similar to that of carbolic acid; it melts at 98.6° F., and has a specific gravity of 1.3. Water readily dissolves 2 per cent., and in alcohol, ether and alkalies it is very soluble. Ortho-bromo-phenol is a dark violet liquid, which dissolves readily in water, ether, alcohol and alkalies. Its odor resembles carbolic acid. The ointment was generally applied to the affected region twice daily, the inunction lasting about a minute each time. It produced a slight smarting sensation, lasting two or three minutes. No ill effects were observed. No other treatment was employed at the same time. In some of the cases the redness began to disappear after the second application; the temperature at the same time falling to normal, or nearly so, and the disease showing no tendency to spread. Only one of the twenty cases lasted as long as eight days, all the others recovering in from three to six days. Desquamation was always less marked than under other methods of treatment. In none of the cases did suppuration occur. Altogether, judging from the small number of cases observed, Churiloff feels justified in recommending further trial of the drug.

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OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,

FRANK W. TALLEY, M.D.

Acute Peritonitis from the Rupture of a Dermoid Cyst in a Puerperal Woman.

Tison (*Revue Obstétrique et Gynécologie*, May, 1892) reports the case of a primipara who had been delivered by forceps. On the following morning symptoms of peritonitis presented themselves. The condition became worse, and the woman died five and a half days post-partum. The autopsy showed as cause of the peritonitis a ruptured dermoid cyst of the left ovary. The cause and time of rupture could not be determined.

A Case of Puerperal Peritonitis Treated by Hysterectomy; Recovery.

Lapthorn Smith, of Montreal (*American Journal of Obstetrics*, January, 1892), reports a case in which, after a difficult labor, some portions of the placenta were left behind. Two days later the patient developed a high fever. Smith opened the abdomen and, as the adnexa were healthy, removed the uterus. A piece of the placenta was found closely attached to the uterus. The uterine cavity was of a dark-red color, and a half-purulent fluid could be pressed out of the sinuses. The walls of the uterus were soft and fragile. The patient recovered.

Concerning Conception Intra-puerperium.

Krönig (*Centralblatt für Gynäkologie*, No. 19, 1893) described before the Gesellschaft für Geburtshulfe zu Leipzig the case of a II-para delivered in the Leipziger Frauenklinik who had conceived on the fourth day following the delivery of her first child. She was 22 years old when delivered of a healthy child. Four days later she was subjected to coitus. Following this was three months abstinence from intercourse. At four and a half months from the coitus the movements of the fetus were observed, and on the 243d day labor occurred. The child, having every appearance of being at full term, measured 52 cm. and weighed 3550 grammes.

After a careful study of the case, Krönig arrives at the following conclusions:

(1) A fully-developed child may be born after a period of pregnancy lasting 243 days.

(2) The spermatozoön retains its vitality in the lochial secretion.

(3) The ovarian activity does not entirely cease during pregnancy. The follicles ripen and may rupture very soon after labor.

(4) Menstruation and ovulation may occur independently.

(5) In strong individuals there may be a rapid regeneration of the mucous membrane, rendering possible the attachment of an impregnated ovule in the earliest period of the puerperal state.

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Extra-uterine Pregnancy, with Rupture of Abdominal Wall and Protrusion of an Arm.

Kimura, of Japan (*Kii Provincial Medical Society's Reports*, January 13, 1893), reports the case of a woman, VI-para, aged 41, whose menstruation ceased in April, 1882. The pregnancy continued without incident until December 28, when she was seized with pain in the back, attended with swelling of the abdomen and hemorrhage. The phenomena of labor did not culminate, and the patient grew better on tentative measures and a tonic. On the 14th of January she was again seen, and an opening as large as a silver half-dollar was observed two inches above the umbilicus, from which some purulent matter, with a foul odor, containing hair, was discharging. Examination of the cavity revealed the presence of a fetus undergoing maceration. Three days later the arm of the fetus was found protruding from the opening as far as the shoulder. Celiotomy was performed two days after by Sato, of Nimiyacho, and a fully-developed macerated fetus delivered through the incision after craniotomy had been performed. The placenta and cord came away in pieces during the irrigation with 1.5 per cent. carbolic acid solution. The woman made a complete recovery in four weeks.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

Celiotomy with Local Anesthesia.

Largeau (*Annales de Gynécologie et d'Obstétrique*, May, 1893) reported before the French Surgical Congress, at its recent meeting, a double ovariotomy performed upon a patient suffering with advanced heart disease. No anesthetic was administered. Local anesthesia was produced over the line of incision by the use of powdered chloride of ethyl. He had previously operated in the same way for ovarian cyst and in a case of ovarian hysterectomy.

Largeau believes that the performance of abdominal section in cases suffering with cardiac disease, without general anesthesia, is perfectly justifiable and practicable, and quotes the above case as proof.

How Is Tubercular Peritonitis Cured by Coeliotomy?

Bumm (*Centralblatt für Gynäkologie*, No. 22, 1893) analyzed a case of tubercular peritonitis where, after opening the peritoneum and draining off the ascitic fluid, the patient did well.

He believes that the operation sets up changes in which the tuberculous deposits undergo a round-cell infiltration and cicatricial change. The giant cells and epitheloid elements disappear. The serous fluid greatly promotes the growth of the tubercle bacillus, and its removal is, therefore, also beneficial.

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Removal of a Five-pound Lithopedion.

Gattschalk demonstrated before the Gesellschaft für Geburtshulfe und Gynäkologie zu Berlin (*Centralblatt für Gynäkologie*, No. 17, 1893) a lithopedion, or lithokelyphopedion, weighing five pounds, which he had removed by celiotomy. The patient from whom the tumor was removed was 54 years old, and four years advanced in the menopause. She had carried the tumor for thirty years.

Thirty years before, a diagnosis of extra-uterine pregnancy had been made by her attending physician. At the normal end of the pregnancy severe pains occurred, lasting several days, and ceased with the movements of the child. This was followed by a severe attack of peritonitis, which confined the patient to her bed for eighteen weeks. She then slowly regained her health and was regular in her menses until her fiftieth year.

Coeliotomy was indicated by the severe appearances of incarceration, espe cially with reference to the bladder, afforded by the head firmly impacted in the vesico-uterine excavation. The uterus was pressed backward and upward in the concavity of the sacrum by a tumor of stony hardness.

Examination of the specimen proved the tumor to be a pure ovarian pregnancy. The sac, formed by the ovarian coverings, was from one to several millimetres thick. In the external layers of the sac various corpora lutea and several follicles could be recognized. Under the outside layer was a thicker stratum of chalky substance enveloping the well-preserved fetus. On the inner surface of this layer the placenta was attached. The vessels were yet dilated to the thickness of a little finger.

The tumor, which reached to the umbilicus, was related topographically to the uterus as an ovarian tumor. Its normal left tube was stretched, but not otherwise changed. The seat of the tumor was upon the posterior surface of the lateral ligament.

The patient made a good recovery.

PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Changes in the Cardiac Ganglia in Acute and Sub-acute Endocarditis.

Kusnezow (*Archives für Path. Anat. u. Phys. u. für Klin. Med.*, Bd. cxxxii, Hft. 1) concludes his lengthy and interesting paper as follows:

(1) In acute endocarditis the observed changes in the cardiac ganglia occur in the form of inflammatory granulations, proliferation and swelling of the endothelium of the capsule, and albuminoid and fatty degeneration of the nerve cells.

(2) The changes in the ganglia in the lower part of the auricular walls

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depend, in the main, upon the extent of the process of granulation by continuity of tissue from the valves to the fatty tissue surrounding the ganglion.

(3) Vacuolation of the nerve cells was not observed in acute endocarditis.

(4) Pigment degeneration of the nerve cells of the heart is not always a physiological appearance, and does not always depend upon the age of the individual.

(5) In hypertrophy of the heart, pigment accumulations in the protoplasm of the nerve cells is a common appearance.

(6) The alteration of the cardiac muscle, in the majority of cases, stands in no constant relation to the changes in the cardiac ganglia.

(7) Only in rare cases is it possible to establish a dependence of the power of the heart upon the diseases of the cardiac ganglia, in a pathologico-anatomical manner, during life.

The Excretion of Bacteria through the Kidneys.

A. Cavazzani (*Centralb. f. Allg. Path. u. Path Anat.*, Vol. IV, No. 11, p. 403). The observer performed about a dozen experiments upon white rats and rabbits in order to determine whether or not bacteria could pass through the normal renal epithelium and so be excreted by the kidneys. In order to do this he ligated the renal artery or a branch of it, cutting off the blood supply for an hour, then freeing the artery of the ligature. By the ischemia thus produced the epithelium was damaged and underwent hyaline degeneration, etc. At the time when this change was made he injected into the circulation anthrax and other micro-organisms, and in some cases indigo-carmine. Shortly after the injection the kidney was excised and examined, and after the death of the animal the other kidney was removed and compared. The conclusions at which his work caused him to arrive are:

The changes in the renal epithelium, which can be produced by the injection of chemical substances, or by the ligation of the renal artery, distinctly increase the rapidity of the separation of bacteria from the blood by the urine.

The epithelial cells of the convoluted tubules of the kidney, as long as they are anatomically and physiologically unimpaired, possess the power of retaining many coloring materials and bacteria in the blood.

If the epithelial cells are altered by a temporary ischemia, this power is lost and the minute particles pass out of the blood into the urine with great rapidity,

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Contributions to the Morphology and Biology of the Cause of Tuberculosis.

Fischel (published by the Hygienic Institute of the German University of Prague, 1891–92). The observer finds that the tubercle bacillus is the parasitic form of an originally saprophytic micro-organism, and that in its primitive condition it has a branched organism. In proof of this, attention is called to the fact, constantly observed in stained preparations, that the bacilli are frequently associated to form angles. The writer finds a distinct relationship existing between the micro-organism of tuberculosis and actinomycosis. The parasitic form of its growth varies according to the substratum in which it grows, being sometimes long, sometimes short, sometimes slender, at others plump, etc. The bacilli of chicken tuberculosis stand in generic relation to mammalian tuberculosis, and appear to be different forms of the same thing, varying because of the difference in their nutriment. For these reasons the observer thinks that the tubercle bacillus is a pleomorphic and variable micro-organism.

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Changes in the Liver and Intestine in the Coccidia—Disease of Rabbits.

Felsenthal and Stamm (*Virchow's Archives*, Bd. cxxxii, Hft. 1, p. 36). The gross morbid appearances of the liver gave it the appearance of being completely occupied by tumors. The surface was everywhere smooth and shining, and upon it were seen a large number of yellow white masses, varying in size between a pin-head and a hazel-nut. Many of these extended by connecting constricted bands to neighboring masses, so that the surface seemed covered as by a network. Section of the liver revealed the same appearance as the surface. Microscopic examination of the nodules, which appeared cheesy, showed not a single pus cell, but instead, in a granular detritus, immense numbers of coccidia. Though carefully studied, the liver cells were never found to contain coccidia.

The principal change observed in the liver was the formation of yellowish nodules, resembling the ovarian tumor known as *adenocystoma papilliferum*. The spaces in these cysts contained abundant coccidia, and many, or in fact, nearly all, of the epithelial cells lining the cyst were occupied by the parasites.

The writers are of the opinion that the cysts originate from obstruction of the bile ducts, and that the papillæ are only expressions of a chronic catarrh of the epithelium, due to the presence of the coccidia, which act in a simple mechanical way, and are in no wise specific.

In the intestine the villi were hypertrophied, the glands enlarged, and the epithelium was extensively occupied by the parasites. An important fact observed was that the affected epithelium was always in a single layer of cells, which, though enlarged, did not seem to proliferate.

The Hereditary Transmission of Immunity Agaist Rabies, from the Father to the Offspring.

Tizzoni, Guido and Cetanni, Eugenio (*Centralb. f. Bakt. u. Parasik.*, 1893, Vol. xiii, No. 3). These investigations were made with the express purpose of determining the transmission of immunity by the semen of the father to the offspring. The results were as follows:

(1) The father can transmit acquired immunity against rabies to the offspring through the semen.

(2) This occurs without any peculiar influence on the part of the mother, as the father can transmit the immunity to the offspring of different mothers.

(3) The immunity thus transmitted extends equally to all the progeny.

(4) The immunity of the young is less than that which the father possesses.

(5) The immunity transmitted through the semen is permanent, in distinction to that acquired through milk or injected blood, which is transitory.

Bacillary Pseudo-tuberculosis in Man. Case of Addison's Disease.

The case reported (*Bulletins et Mém. de la Soc. Méd. des Hôspeteaux*, 1891, No. 21), was a man aged 17 years, without hereditary tendency to tuberculosis, who for some time suffered from obscure gastro-intestinal symptoms with vomiting, sometimes of bile, diarrhea, considerable fever, later subnormal temperature and a distinct brownish discoloration of the skin. When he came to necropsy the right supra-renal capsule was normal, but the left had changed to a dry, grey, cheesy mass, on whose periphery a red zone was found. Microscopically the mass consisted of a granular detritus, on whose periphery neither tubules, nor giant

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cells were found. In spite of the most exact researches no tubercle bacilli could be discovered, but on applying the method of Loeffler and Malassey and Vignal, in the peripheral inflammatory zone bacilli with all the characteristics of the bacillus of pseudo-tuberculosis were found. Inoculation into guinea pigs and mice produced pseudo-tuberculosis that was perfectly characteristic.

In discussing the case Chamtenesse remarked that pseudo-tuberculosis was much more common in man than was commonly supposed, and cited some experiments of his own in proof of it.

MISCELLANEOUS.

RESIGNATION OF PROFESSOR WILLIAM GOODELL.

Dr. William Goodell, professor of gynecology in the Medical Department of the University of Pennsylvania, presented his resignation to the trustees, because of the growing demands made upon him by his private practice.

At a meeting of the trustees of the University of Pennsylvania, held May 19, 1893, it was resolved "that the resignation of Professor Goodell from the Chair of Gynecology be accepted with regret, and with the assurance of the high appreciation by the Board of Trustees, of the ability and fidelity with which he has fulfilled his duties; that there be now created an Honorary Professorship of Gynecology, with the right of lecturing attached, and that Professor Goodell be nominated thereto."

At the stated meeting held June 6, 1893, the Board of Trustees unanimously elected Dr. Goodell honorary professor of gynecology, with the right of lecturing.

ELECTION OF DR. CHARLES B. PENROSE TO THE CHAIR OF GYNECOLOGY.

At a recent meeting of the Board of Trustees of the University, Dr. Charles Bingham Penrose was elected to fill the vacancy created by the resignation of Dr. William Goodell.

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BOOK NOTICES.

A System of Genito-Urinary Diseases, Syphilology and Dermatology. By Various Authors. Edited by Prince A. Morrow, A.M., M.D., Clinical Professor of Genito-Urinary Diseases in the University of the City of New York, etc. New York: D. Appleton & Co., 1893.

The development of specialism in medicine has given individuals such large opportunities for the study and treatment of special diseases that our knowledge of pathology and therapeutics has been constantly and rapidly added to. This has resulted in more accurate methods of diagnosis and in more rational lines of treatment. As a consequence, medical bookmaking has undergone a radical change. It has become the fashion at the present time to assign the writing of the different subjects of a work to various authors, each of whom, on account of his special study, is able to speak with authority on the subject assigned. Moreover, it is impossible for a single author to keep abreast with the vast mass of medical literature of the day.

Dr. Morrow is therefore to be congratulated for having secured the coöperation of a large number of distinguished authors in the preparation of the "System of Genito-Urinary Diseases, Syphilology and Dermatology."

Volume I is devoted exclusively to genito-urinary diseases. As a pre-requisite to a comprehensive study of the subject, Dr. George Woolsey has contributed such anatomical and physiological descriptions as have a direct relation to the text which follows. Articles follow by Dr. Ramon Guitéras, on diseases of the penis; by Dr. F. Tilden Brown, on diseases and injuries of the urethra. In a brief chapter on the etiology of urethritis, Dr. S. Lustgarten accepts the specific nature of the affection, and concludes that "the gonococcus Neisser produces gonorrhea." The contribution on acute urethritis—gonorrhea—is by Dr. George Emerson Brewer. The author insists on the value of local treatment. The subject of chronic gonorrhea or gleet is ably presented by Dr. William K. Otis. In the treatment of this condition the endoscopic treatment is highly recommended. A plate showing twenty-four colored reproductions of the endoscopic picture of the urethra adds much to the value of the article. The importance of this subject quite justifies the chapter on endoscopy by Dr. Hermann G. Klotz. Gonorrheal ophthalmia is contributed by Dr. Joseph A. Andrews, and gonorrheal rheumatism by Dr. Frank Hartley. Gonorrhea of the rectum, nose, mouth, ear, umbilicus and axilla is described by Dr. James P. Tuttle. The article on stricture of the urethra, by Dr. J. William White, is a very careful and complete presentation of the subject, and will be found a useful guide in practice. Diseases of the prostate are well presented by Dr. W. T. Belfield. Dr. Joseph D. Bryant writes on the functional disorders of micturition; Dr. Eugene Fuller, on the diagnostic significance of pathological modifications in the urine; and

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Dr. J. A. Fordyce, on urinary fever. An exhaustive article on the important subject of cystoscopy is contributed by Dr. Willy Meyer. Eight colored plates are appended. Chapters follow on the cystites, by Dr. Samuel Alexander; on injuries and diseases of the bladder, by Dr. George Ryerson Fowler; and on rupture of the bladder, by Dr. Alexander W. Stein. Dr. Francis Sedgewick Watson has presented a very interesting chapter on tumors of the bladder. Stone in the bladder, prostate, urethra and ureters has been excellently presented by Dr. Arthur T. Cabot, in an article covering 130 pages. Dr. Lewis A. Stimson has given us a careful resumé on the surgical diseases of the kidney. Chapters follow by Dr. John P. Bryson on tuberculosis urogenitalis; by Dr. Charles W. Allen, on diseases of the scrotum; by Dr. James Bell, on diseases of the testicles; by Drs. John A. Wyeth and W. W. Van Arsdale, on hydrocele and spermatocele; by Edward L. Keyes, on varicocele; by Dr. Paul Thorndike, on diseases of the seminal vesicles; by Dr. Prince A. Morrow, on functional disorders of the male sexual organs; and by Dr. Andrew F. Currier, on gonorrhea in the female.

The chapters are all well written, and contain the most modern views on their respective subjects. Two more volumes are to follow. The work cannot fail to earn a well-deserved success.

FERMENTATION, INFECTION AND IMMUNITY: A NEW THEORY OF THESE PROCESSES. By J. W. MCLAUGHLIN, M.D. Austin, Texas, 1892.

This little book of 240 pages, called by the author an *essay*, endeavors to give a clear and concise account of our present knowledge of the subjects, and the theories offered in explanation of them, after which a new theory, called the "physical theory," is offered as being the long-sought desideratum.

In brief, this theory is as follows: The microörganisms consist of protoplasm made by a complex series of molecules which constantly display a rhythmical, wave-like movement. The medium in which the microörganisms live also consists of atoms and molecules in constant wave-like motion. If the waves of molecular movement in the protoplasm and the nutrient medium are equal, no change occurs in either; but if they possess the slightest variation of rhythm they interfere with and beat against each other, and in this way overthrow the molecular constitution of the medium and dissipate its atoms, which when thus liberated are drawn together by their chemical affinities to recombine, forming new substances, as alcohol and carbon dioxide in the vinous fermentation, and ptomaines in the case of pathogenic bacteria.

The subject of immunity is finally said to be a "question of susceptibility or non-susceptibility of the albuminoid molecules of the animal to the molecular bombardment of a given bacterium." "A pathogenic bacterium, from this standpoint, is one whose molecular waves can disrupt the albuminoids of the body, which, in reforming, produce ptomaines."

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This idea of "molecular bombardment" seems to be the new idea which the author intends to convey, but while we have never seen it associated in exactly this relation before, and never turned to it for an explanation of immunity, we fail to find in it either anything new—for who did not previously know that molecular movement was a well-supported physical theory?—or any real explanation for the phenomena considered, for the attempts of the author are to explain one theory by the substitution of another in its place. Molecular movements are all theoretical movements, and are no better understood than chemical affinity, magnetism, etc. The work is certainly worth the reading, but we fear will not revolutionize bacteriology. It is too Utopian, explaining everything by some molecular movement or bombardment, and leaving nothing to be investigated in the future.

The general style of the composition is fairly good, the method of argument suggesting that the author is a disciple of Herbert Spencer. At times there are little bursts of eloquence; at others a pleasing humor is introduced.

The serious errors are few, though we would injure ourselves if we did not correct the error occurring on page 80, and repeated on page 159, that the tetanus bacillus is a *strictly aerobic* organism. Probably *anaerobic* was intended, though it will scarcely fit in the context.

THE MASTOID OPERATION, INCLUDING ITS HISTORY, ANATOMY AND PATHOLOGY. By SAMUEL ELLSWORTH ALLEN, A.M., M.D. Cincinnati: Robert Clark & Co., 1892.

In this little monograph the author has recorded what he has learned at the clinic of Prof. Schwartze, in addition to personal anatomical work and considerable clinical observation. Although the mastoid operation is a department of surgery, still in the text-books the subject receives but brief attention. With the development of otology, however, the operation has been perfected and placed on a firm basis by Schwartze, Stacke, and others.

After a careful historical resumé, the anatomy of the parts concerned is considered. The description is supplemented by numerous cuts and plates, which simplify the text. The operation is to be performed in accordance with the most perfect aseptic methods. The work closes with the indications which demand the operation. It may be recommended to all who are interested in this branch of surgery.

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UNIVERSITY
MEDICAL MAGAZINE

SEPTEMBER, 1893.

TREATMENT OF APPENDICITIS.[1]

By John B. Deaver, M.D.,

Philadelphia.

Since the publication of my last paper on the subject of appendicitis, under the title of "Inflammation in the Right Iliac Fossa Associated with Lesion of the Cecum, the Vermiform Appendix and Adjacent Tissues," which appeared in the *Medical News*, Philadelphia, for August, 1892, I have seen and operated upon a large number of both acute and relapsing cases, which have so impressed me with certain points in reference to the pathology, as well as to a different course of treatment that I feel warranted in presenting my present views to the profession. While the subject of appendicitis has received a great amount of attention from the profession, I still believe that better rules remain to be formulated for our guidance in the prompt treatment of this dangerous disease. In the paper referred to, I divided inflammation in the right iliac fossa associated with lesions of the cecum, the vermiform appendix and adjacent tissues, into intra- and extra-peritoneal. I proposed that the term intra-peritoneal inflammation should include all cases of inflammation in the right iliac fossa having their origin within the peritoneum and associated with lesions of the cecum or the appendix, for the following reasons: (1) I believe it impossible to differentiate between appendicitis, typhlitis and peri-typhlitis; (2) I believe the terms typhlitis and peri-typhlitis to be misleading, and as long as it is taught that they are distinct affections, independent of trouble with the appendix, just so long will the physician be misled as to the true character of inflammation in this region. As a result of this classification and teaching cases are treated on the so-called

[1] Read before the American Surgical Association at Buffalo, June, 1893.

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"expectant" plan, and there is delay from day to day in the hope that the case may prove to be one either of typhlitis or peri-typhlitis, in which operation is not so urgently called for as it would be in appendicitis. I consider it nothing more than a mere refinement to divide inflammation of the cecum into inflammation of the gut proper and inflammation of its serous covering (peri-typhlitis), since there can be no practical value in such a division, as both conditions require a common treatment; and further, I do not believe it possible to make the differentiation of these conditions at the bedside. It has been my fortune to have seen a large number of cases of inflammation in the right iliac fossa, as well as to have operated on many, and I think I have clearly demonstrated to my own satisfaction that the best classification of the three pathological conditions—appendicitis, typhlitis and peri-typhlitis—is under the head of intra-peritoneal inflammation in the right iliac fossa. In the greater number of cases of inflammation in the right iliac fossa the vermiform appendix is the organ primarily attacked, yet there are cases which have been demonstrated by post-mortem examinations in which the cecum alone is the seat of the trouble; but in those fatal cases where both the cecum and the appendix are found to have been the seat of inflammation, I believe, as do most observers, that the starting-point of such inflammation has been in the appendix. Recognizing that there are three pathological conditions included in intra-peritoneal inflammation in the right iliac fossa, and that it is only in exceptional cases that the diagnosis between typhlitis and peri-typhlitis can be made, is it not safer and more rational to dispose of all three conditions in the one manner? The differentiation between these conditions may be compared to an attempt to recognize the different coverings of a strangulated hernia, which, although existing anatomically, are practically indistinguishable.

The differentiation between typhlitis and peri-typhlitis, I think, requires an astuteness greater than we are willing to concede even to the most expert.

Extra-peritoneal inflammation in the right iliac fossa includes that class of cases in which the tissues adjacent to the cecum and appendix are involved, and constitutes para-typhlitis. While I do believe that there are cases of extra-peritoneal inflammation (para-typhlitis) that originate independently of any trouble in the appendix and involve simply the connective tissue adjacent to the cecum, I do not deny that the starting-point of such an inflammation may be the appendix.

The latter condition may arise when the appendix is an extra-peritoneal organ, as when it lies posterior to the cecum and the ascending colon. When the appendix is post-cecal as well as post-colic, and is the seat of ulcerative inflammation, it is readily understood how,

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through extension by continuity of tissue, the inflammatory process may, involve the connective tissue adjacent to the appendix and thus occasion a so-called para-typhlitis. This anomalous position of the appendix also accounts in perforative appendicitis for extra-peritoneal collections of pus in the right iliac fossa, due to the appendicitis, and not (in every instance) consequent solely upon inflammation of the connective tissue in the neighborhood of the cecum. It likewise explains why abscess, the result of appendicitis, does not always point internally to the anterior superior spine of the ilium, but may from its position simulate peri-nephritic or lumbar abscess.

An intra-peritoneal inflammation starting as appendicitis and forming a circumscribed swelling, which shuts itself off from the general peritoneal cavity by the formation of adhesions, may go on to pus formation, and even rupture into the peri-cecal and peri-colic tissues.

I am now prepared to assert that all inflammations of the right iliac fossa, excluding inflammatory affections of the overlying abdominal muscles, have their starting point in the appendix; therefore I would expunge from the medical vocabulary the terms typhlitis, peri-typhlitis and para-typhlitis, all of which I am convinced are misnomers and calculated to be a stumbling block in the way of making a correct diaguosis, so essential to the proper treatment of the only inflammation which is here seen, namely, appendicitis. My reason for making this statement, which in the minds of many of our purely medical colleagues will doubtless seem preposterous, is that in the many cases of inflammation in the right iliac fossa of the character under consideration, I have yet to open the abdomen of one where the appendix was not at fault, and where, too, it presented the most destructive changes, granting that other of the neighboring tissues were involved. Further, upon the post-mortem table I have seen the abdomen opened where the diagnosis of peritonitis, typhlitis, or peri-typhlitis had been made and in every instance the appendix showed ample microscopical evidence of disease to satisfactorily explain the cause of the death. Having concluded, therefore, that all inflammations in the right iliac fossa take their origin in the appendix, it is next in order to classify the different pathological conditions of the appendix. All cases of appendicitis are divisible into five classes: catarrhal, obstructive (due to the presence of a foreign body, as a fecal concretion, an enterolith, a stricture, etc.), perforative, tubercular and relapsing. The literature upon the subject of the etiology, the symptomatology and the diagnosis of appendicitis is so complete that little, if anything, of practical value could be added. I will, therefore, proceed to discuss the treatment.

The treatment which, to my mind, offers the best opportunity for permanent relief is that of immediate removal of the offending appendix

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as soon as the diagnosis is established. My reason for adopting such a radical course has been forced upon me by the large number of cases I have seen perish when well-directed medical means had failed to afford relief, many of the patients being beyond surgical aid. While I have seen cases of acute appendicitis recover without operation, this has not been the rule, but the exception. Furthermore, being unable to subsequently observe the cases supposed to have recovered without operation, it is impossible to estimate how many of these suffered from relapses. If reliable statistics were available upon this point an arbitrary rule could be made. In support of the treatment of early removal, I would state that all the cases in which I had the opportunity of operating early have, without exception, recovered. While of those in which abscess had formed and, in many instances, ruptured into the general peritoneal cavity, comparatively few recovered. I maintain that the risk of early operation, if skillfully performed, is less than that attendant upon the expectant plan of treatment. The cases, if any, which constitute the exception to this rule are those in which the symptoms abate upon free purgation, and embrace the catarrhal variety only. When early removal of the appendix is not feasible the case is not usually seen by the consultant until there is present a well-marked mass, which may be exudate alone, but which is more likely to be exudate and pus. There may be, too, associated with the local trouble, general peritonitis; the latter, if present, means in all probability that a communication has been established between the abscess cavity and that of the general peritoneum, a condition which, in the majority of instances, does not offer the same chance of recovery as if the operation had been performed early.

The technique of the operation for appendicitis where abscess exists varies by reason of the different local conditions found. When the abscess is circumscribed and shut off, after the pus has been evacuated and the cavity irrigated, if the appendix cannot readily be found, it is not judicious to make a prolonged search for it, by which the limiting wall may be broken through and a communication with the general peritoneum established. In this class of cases, however, I have been fortunate enough in most cases to find the appendix and remove it without breaking through the abscess wall. This is always more satisfactory to the surgeon than to complete the operation by simply draining or packing the abscess cavity, and it removes what may be the cause of one or more attacks of the relapsing variety of the disease. When the abscess is in communication with the general peritoneal cavity a more prolonged search for the appendix may be made with less risk than in the preceding state, but the patient's general condition is usually so bad under these circumstances as to make it unwise to keep

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him under the effect of the anesthetic any longer than is absolutely necessary.

The points I observe in making the incision for the removal of the appendix in acute cases where there is present a mass, be it pus or exudate, are the following: When the loin is rendered prominent by the mass or is the seat of edema, I take it as an indication that the appendix holds a post-cecal or an external antero-lateral position or that it comes off from the apex of the cecum, and I carry the incision parallel with and a short distance above the outer third of Poupart's ligament, prolonging it outward if necessary. When the mass presents itself well to the inner side of the anterior superior spine of the ilium, I carry the incision through the semi-lunar line, rather through the rectus muscle immediately to the inner side of the semi-lunar line. The wound, when carried through the muscle, heals more solidly and, therefore, there is less likelihood of the development of a ventral hernia than when made through the semi-lunar line.

Of the obstructive and the perforative varieties of appendicitis, there is one form which partakes of the characteristics of both, namely, the explosive or fulminative. This form of the disease, fortunately but seldom seen in comparison with the other varieties, offers but little chance of relief by either medical or surgical means. The characteristic features of this variety are that within a short time after the onset of the trouble there is a general peritonitis of the most pronounced type and inability in almost all instances to elicit the physical signs—circumscribed tenderness, increased resistance, etc., so corroborative of the most usual forms of appendix disease, on account of their being obscured by the great amount of distention and the universal tenderness resulting from the general peritonitis. Again, the depressed condition of the patient, as seen in the explosive type, is out of all proportion to that of either of the other forms; this is undoubtedly due to septic absorption, consequent upon the general septic peritonitis, the result of early rupture, the appendix unloading its poisonous contents into the general peritoneal cavity before nature has had time to shut off the appendix by the deposit of inflammatory exudate. The absence of any attempt, perhaps I should say any successful attempt, upon the part of nature to partition the general peritoneal cavity by the deposit of inflammatory exudate, thus isolating the appendix in a small compartment where it could deposit its contents without the risk of producing a general infective peritonitis, has been clearly demonstrated to those of us who have operated in this class of cases. Post-mortem examination shows, too, the free communication between the seat of perforation in the appendix and the peritoneal cavity, the presence of ichorous pus, and coils of small intestine glued together, not only in the

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ilio-cecal region, but elsewhere as well, due to the general peritoneal inflammation. This general deposit of exudate immobilizes the intestine, and makes it difficult, and in many cases impossible, to obtain any action from salines or small and repeated doses of calomel. In this form of the disease vomiting is an early symptom, and it may become stercoraceous. The explanation of the early vomiting, I believe, is due to the influence of the profound sepsis upon the pneumogastric nerves, and the stercoraceous vomiting to reversed peristalsis caused by the intestines being both infiltrated with and confined by inflammatory deposits. Although these cases are in almost every instance necessarily fatal, I can see but one means of relief, namely, operation, which should consist in the removal of the appendix, washing out the peritoneal cavity with a weak solution of warm carbolic acid and establishing drainage. In order that this treatment shall accomplish any good it must be done at once; after the case has progressed to any extent the patient will show evidence of shock, the result of nervous depression from sepsis, and then operation will be of no avail. To advise against such radical treatment the following arguments will be brought forth: (1) That many cases of acute primary appendicitis recover without operation; (2) That the risk of the operation is far greater than allowing the disease to take its course; (3) That it does not follow that there may be a second attack.

In answer to the first argument, while I do not for a moment question that many cases of acute primary appendicitis do get well, yet why is it the surgeon is so often called in to find the patient in collapse though it be a primary attack? Do we not all appreciate that the mortality in the operation for acute appendicitis after abscess is formed is high? Are we not constantly hearing of deaths following the operation for appendicitis done at a late date, when, in some instances, the condition of the patient is such as not to warrant completing the operation but simply evacuating the pus? Do we not see cases where nature has stepped in as the surgeon and evacuated the pus into the cecum, the bladder, the vagina, or the rectum? Of these various avenues of spontaneous evacuation, the first, that into the cecum, is the most favorable, while the last may leave the patient a cripple for life, with a deformity, to say the least, difficult if not impossible to correct perfectly.

While I am not in a position (not having had sufficient experience in the removal of the appendix very early in the disease) to draw a just comparison between the mortality of, say, 100 cases operated upon before abscess has formed and the mortality of 100 cases treated as they usually are, first expectantly and later, if abscess form, perhaps by operation; I have no doubt but that the mortality in the latter series would be many times that of the first.

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Operation for the removal of the appendix in acute primary appendicitis, if skillfully and aseptically performed, can add but little risk to the case. The operation is simple because our anatomical landmarks, so important to the successful performance of any operation, are not destroyed by the presence of an inflammation which has resulted in the formation of a mass of exudate or pus.

Under the circumstances, to repeat, a practical familiarity with the topographical anatomy of this region, with the different positions the appendix may hold, must, of necessity, make the operation comparatively easy. If in relapsing appendicitis the operation is simple, how much simpler must removal of the appendix be in a primary attack, where there are no inflammatory deposits save, perhaps, a few recent adhesions which readily yield to pressure with the finger, and where the bowel is not rendered friable by successive attacks of inflammation.

Convalescence from operation in early primary, as in relapsing appendicitis, is more rapid, as the wound in the abdominal walls is immediately closed, not requiring to be packed or drained as when an abscess is present. Fecal fistula will not follow operation if done early in acute primary appendicitis or in recurrent appendicitis, nor is ventral hernia so liable to occur.

There is but one other intra-abdominal affection which demands as prompt interference as do many cases of appendicitis, namely, acute mechanical intestinal obstruction. The surgeon, when brought face to face with such a condition, must meet the issue squarely; while it is true there can be no fixed or fast rules in medicine, here should come in the exception. Experience alone can guide the surgeon in choosing the proper course to pursue. Too conservative principles have lost many a patient his life simply because it cannot be determined in appendicitis whether the case will terminate favorably or not. The earlier the offending viscus is removed the greater is the likelihood of a successful issue in the case. Many of the abscesses following appendicitis, being unconfined by a sac or a bank of lymph, infect the peritoneum directly with a suppurative peritonitis, and so lead to a fatal termination. This, I think, would fully counterbalance any objection to early interference.

As to the propriety of the removal of the appendix in cases of recurrent appendicitis, there is, in my mind, no doubt. While I am willing to admit that my experience has taught me that acute attacks of recurrent appendicitis are less fatal than primary appendicitis, yet I cannot see how this argues against removal of the appendix between attacks, the period for the elective operation. I am unable to understand the philosophy of the argument that because a patient has

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survived a number of attacks of recurrent appendicitis, the appendix should not be taken out, since each recurring attack may possess elements of danger unknown to us which may deprive our patient of his life. Those of us who have observed these cases carefully know that many are the subjects of chronic invalidism. Many of these cases are treated for neurasthenia, hysteria, etc., by the well-known *rest* cure and massage, the mistake being due to the nervous symptoms which they present. Careful inquiry into the history of the case, with a searching physical examination by one whose touch is educated, will reveal the nature of the trouble. I could cite several such, but as the object of this paper is not to make it a clinical report of cases, but to formulate my present views relative to the surgical management of all cases of appendicitis, I will make mention of but one, the niece of a most excellent physician practicing in Camden. The young woman in question suffered from the first attack seven years before I removed the appendix. During this time she had two acute attacks, from neither of which she completely recovered. Since the last attack, seventeen months before operation, she had spent the greater part of her time in bed. The only points demonstrable in this case were the presence of pain, referred to the site of the appendix, and the presence of a tender point, of the size of a silver quarter, corresponding also to the position of the normal appendix. The operation, which proved to be comparatively simple, was not followed by any untoward symptoms, the patient recovering completely and being now well some ten weeks. The condition of the appendix when exposed did not convey the idea that it was wholly the cause of the prolonged suffering this poor woman underwent, yet to the touch it was rigid, and had evidently been the seat of catarrhal inflammation, resulting in great thickening of the submucosa, as proved by section.

The amount of disease in the appendix in recurrent appendicitis is not at all proportionate to the severity of the symptoms, save in a few cases, the case mentioned above being an example.

In tubercular appendicitis the advisability of removing the appendix will depend upon the degree of local discomfort, the amount of general disturbance, etc. While I have been consulted to operate for tubercular appendicitis, I have never done so on account of the absence of serious local disturbance and the presence of much tubercular involvement of the lungs. In some of the cases of tubercular appendicitis there will be found also disseminated tubercle of the peritoneum, which, if present, calls for free irrigation of the peritoneal cavity and drainage.

In concluding this brief paper I must caution against operation, when time is not an element, until the patient has been thoroughly

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prepared, that is, by rest in bed for two, three or more days, a limited but nutritious diet, and, most important of all, the free evacuation of the bowels. Experienced operators will all bear witness to the importance of a clear alimentary canal in any abdominal operation. In acute attacks of appendicitis I always feel that the operation is certain to be followed by success if the patient has had two or more free evacuations during the day of operation; while, on the other hand, in acute cases when the bowels have been kept locked up, as it were, with opium, I confess I never feel sure of the result.

GLAUCOMA.

By James Wallace, M.D.,

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Of the many snares that entrap the incautious practitioner who boldly ventures to include in his jurisdiction the delicate organs of the human body, whose multiplicity of function, diversity of structure and complex symptomatology, demand elaboration in description, exquisitely trained skill in perception, and mature experience in treatment, the protean disease, whose insidious origin, confused identity and dire results we have to consider, bitterly smites with relentless severity, perhaps more keenly than almost any other, the folly of an overweening confidence in diagnosis, which neglects the assistance of precise methods of examination, and complacently allows the brief period of grace to pass by unimproved. To simply place in contrast the skill of the specialist and the insufficiency of the general practitioner effects no particular good. It is different, however, to point out how responsibility may be faithfully discharged and the acquisitions of medical science be brought into application and strip of its possible calamity the destructive tendency of this most formidable disease.

To overlook a case of cataract involves no greater evil to the patient than deferring for a somewhat longer period the restoration of his sight; indeed, in the incipient stages of cataract, it is only humane on the part of the oculist to avoid mentioning its existence, as such knowledge at this time can impart to the patient nothing but a mental distress which could well have been spared. The gradual progress of cataract produces a coincident reduction of vision which is so slow and even, that the mind, little by little, becomes aware of the difficulty

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and is easily reconciled to it. Sympathetic friends give their advice to wait until the sight has so far diminished as to be no longer able to see the hand held before the eyes, and then go to the surgeon for operation. This is all very well if one could only be sure that it was cataract and not some other disease. Unhappily for many an afflicted individual, the reflection from a gray optic nerve or hazy lens, is mistaken for a cataractous lens, and a glaucoma is allowed to proceed to complete and irrevocable destruction of vision before the true nature of the malady is recognized. Some of the saddest experiences in practice occur in cases of this kind. The faulty reasoning of some individuals, which leads them to put their trust in loud-mouthed visionaries, fanatics or deliberate swindlers, explains some of these unfortunate results. Faith cure has wrought its baleful effects here as elsewhere. In the writer's knowledge, the positive assurance of an eminent oculist was set aside at a time when all would probably have been well, and in blind confidence the sight of one eye after the other passed completely away without the delusion being broken. On the part of the medical practitioner, the error arises in imperfect examination. It is not so much a question of ignorance as of carelessness that permits of such an occurrence. Nothing can be of more utility to a practical man than a system of examination which shall comprise the whole field of diseases, and, at the same time, by critical tests, divide and sub-divide the mass of individual diseases, until the special case under consideration is surely classified in its proper place. A good method is like an ample net stretched across a stream, no fish can escape through it.

The most important symptom in glaucoma, because it is the one most readily elicited, and because it produces the disastrous results of this disease, is the increased hardness of the eye-ball, usually termed increased tension. Mackenzie first mentioned its existence in glaucoma, but it remained for Graefe to explain its significance, and to offer a theory of its production by the hypersecretion of fluid in the eye. Kniess, in 1876, demonstrated the closure of the spaces of Fontana, and the consequent retention in the eye of the secreted fluid. Following out these theories, numerous experimenters have produced increased tension by either hypersecretion, or retention of fluids by obstructing their natural exits. Schöler, by cauterizing the corneo-scleral margin, and thus obliterating the spaces of Fontana, and Weber, by injecting oil into the anterior chamber and hindering excretion, produced glaucoma. Von Hippel and Grünhagen, by irritation of the trigeminus and extirpation of the superior cervical ganglion, produced hypersecretion of fluid with increased intra-ocular tension. The increased fluids in the eye are easily proven to produce the increased hardness. It still remains to show what causes the hypersecretion or retention. Graefe's

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theory was a serous choroiditis, with loss of elasticity in the sclera, the rigid ball refusing to yield to the exuded fluid. Stasis of blood in the choroidal veins, consequent on diminished arterial pressure or senile degenerations in the walls of the vessels, is Jacobson's theory as to the production of the increased intra-ocular pressure. Here the significance of the emotional symptoms, so frequently observed in glaucoma, assumes a more important value, and the frequent occurrence of glaucoma, after severe grief, mental prostration or deprivation of sleep, adds force to the theory of impaired arterial pressure as a factor in its production. We still have to note changes in the eye which obstruct mechanically the outflow of lymph, and here we may mention first the pressure of the iris and ciliary body against the corneo-scleral margin, or adhesions of the iris to the cornea. The hypertrophied ciliary muscle of hypermetropes would thus seem to predispose toward the production of glaucoma, and experience confirms this. The pressure against the ciliary body of a lens undergoing cataractous degeneration could and does produce the same result.

Jacobson thinks the effused fluid is in the vitreous, and the canal of Cloquet is, according to Flemming, distended. This idea is easily suggested by the forward displacement of the iris and the extinction of the anterior chamber. The outlet to the fluids of the anterior part of the eye is by means of the loose connective tissue, forming the ligamentum pectinatum; within its meshes are the spaces of Fontana, opening into a circular canal in the cornea, called the canal of Schlemm, which allows the passage of fluids between the lamellæ of the cornea. Pressure on the root of the iris hinders the passage of lymph into all of these spaces and still further increases the tension. As a result of pressure the various nerves of the eye are deprived of their sensation, while their trunks are affected with neuralgia ascribed to other regions. Temporal and frontal pains of agonizing severity are the frequent concomitants of this disease. Vomiting is not infrequent, from the general disturbance produced by the severity of the local symptoms. The pressure on the ciliary nerves interferes with the sensation of the cornea; anesthesia of this membrane and cloudiness are thus frequently observed.

The most injurious effects of the pressure, however, are found on the intra-ocular portion of the optic nerve. The slightly funnel-shaped aperture which this has in the normal state is converted by the intense and long-continued pressure into a caldron-shaped cavity, termed glaucomatous cup, or excavation. The nerve fibres are forced against the rigid sclerotic forming the boundary of the nerve entrance into the eye-ball, or forced back against the lamina cribrosa, which is the representative of the sclerotic across the space through which the nerve bundles pass inside to the eye, leaving their marrow sheath

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behind at this point. The delicate axis cylinders are thus choked by the pressure, and the portions of retina which they supply become blind spots. The extent and number of these blind spots corresponds to the amount of strangulation. Finally, they are all choked and no area of the retina retains perception. The lamina cribrosa, which lies on a plane with the choroid, is forced back on a level with the sclera or even beyond. It is thus easily seen that any remedial measure must be resorted to in the early stages of the disease before the function of the nerve fibres has been hopelessly destroyed by the pressure.

The accompanying illustrations show the principal conditions in glaucoma very distinctly. In Fig. 1 we have at the right the ciliary muscle and the iris; around the canal of Schlemm can be seen the adhesions of the iris to the cornea, obstructing the flow of lymph into the ligamentum pectinatum, which unites the iris and ciliary muscle to the cornea, and contains the spaces of Fontana opening into the canal of Schlemm. A small segment of the cataractous lens is also visible. In Fig. 2 is seen at the right the incision through the cornea, made by the iridectomy; the iris has been removed; the canal of Schlemm is freed from this impediment, but is partly closed by adhesive inflammation. In Fig. 3 the optic nerve shows the typical cup of glaucoma; the lamina cribrosa is pressed backward; on the right the retina is swollen and edematous; on the left the rods and cones are still visible; the destruction on this side is apparently much less; the space between the two sheaths of the nerve is distended, and some large vessels are visible, cut across on the right border. These specimens were prepared and photographed by myself. They exhibit accurately the closure of the canal of Schlemm by the adhesion of the iris to the cornea, the restoration of the filtration angle of the cornea by the operation of iridectomy, and the deep excavation of the optic nerve by the intense and long-continued intra-ocular pressure. The crystalline lens was cataractous throughout; the anterior chamber contained a hemorrhagic effusion.

This eye contained no tumor, and in eyes that are secondarily affected with glaucoma, as the result of a choroidal tumor, nothing can be done but enucleation. No permanent improvement can be expected, but the cases where glaucoma is a primary disease demand our prompt interference, and it is for them that we exert our powers of surgery and therapeutics. Von Graefe, recognizing the increased tension to be the essential element of evil in the disease, set about for a means of reducing the intra-ocular tension. He succeeded in doing so in removing the iris from healthy eyes, and, carrying his acquisition to glaucomatous eyes, obtained the same result. Although the operation is by no means always a permanent cure of the trouble, it does diminish tension at once, and in a marked degree, its good effects in

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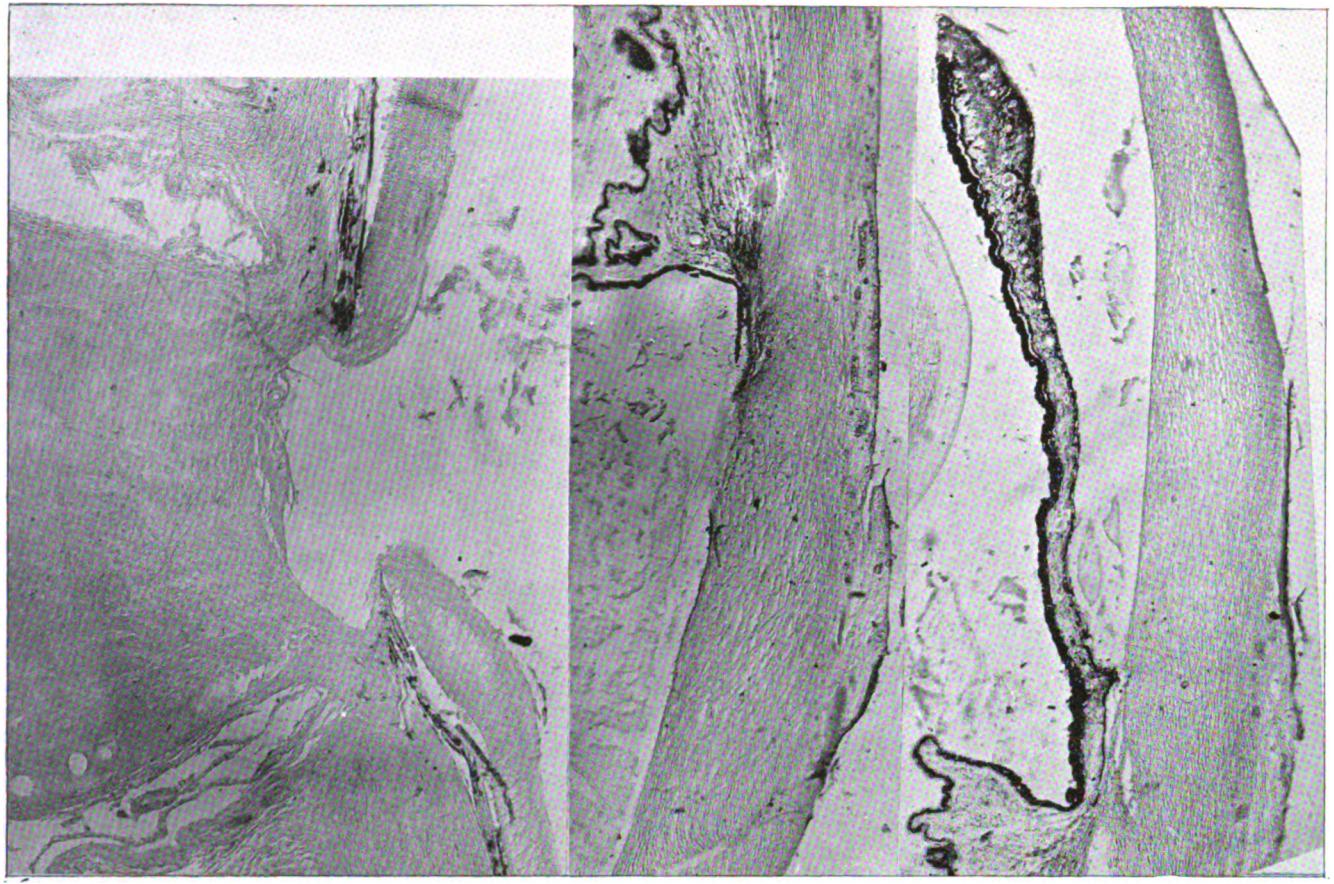
FIG. 3. FIG. 2. FIG. 1.



Glaucomatous excavation of optic nerve, nerve fibres pushed against the scleral border of opening and crowded down on the lamina cribrosa.

Anterior segment of eyeball, showing iris removed by iridectomy; canal of Schlemm partly closed by inflammation.

Anterior segment of eyeball, showing iris adherent around the canal of Schlemm.

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thus conserving the function of the nerve fibres are sufficient warrant for its invariable employment in all cases that possess the requisite conditions. The early performance of the operation is desirable, and contributes largely to its success. As a substitute for iridectomy the myotics, eserine and pilocarpine, are employed; they also diminish the intra-ocular tension, and preserve in a measure the visual function. Eserine is the more effective, but sometimes cannot be tolerated, and pilocarpine is then substituted with advantage. My experience led me to employ cocaine in the cases of glaucoma that were marked by severe pain; and a reduction of the tension, improvement in vision, and diminution of inflammatory signs considerably strengthened my belief in its efficacy. The notes of three cases are detailed, in which this formed part or all of the treatment, and they seem to demonstrate its value in the management of this disease.

CASE I.—Mrs. I. K., aged 70. April 26, 1892.

Right eye vision, counts fingers.

Left eye vision = $\frac{6}{15}$.

Noticed sight of eye failing for past six months.

Right eye. The anterior chamber is shallow, cornea markedly anesthetic; T + 1 a few striæ visible in the periphery of lens; eye ground seen with — 3 D.; shallow excavation of disc; field of vision limited to a small area around fixation point.

Left eye is emmetropic, nerve gray, but no cupping.

Prescribed eserine, gr. $\frac{1}{8}$, cocaine, gr. ii, aqua, f $\frac{7}{3}$i.

May 3, 1892. Vision in right eye, $\frac{2}{20}$; left eye, $\frac{6}{15}$.

June 10, 1892. Right eye, fingers at 2′, left eye, $\frac{6}{7.5}$.

The improvement in the case consisted mainly in the clearing of the cornea and other media, and in the diminution of the tension.

CASE II.—Mrs. E. C., aged 63. September 13, 1892.

Right eye, $\frac{6}{60}$.

Left eye, light perception.

Last June had a severe attack of erysipelas. Immediately after this the vision of left eye failed, until at the present time she can only perceive light. Patient complains of intense pain, sharp and shooting in character, worse at times.

Right eye T +. Left eye, stony, hard. Ophthalmoscope shows that in the right eye there is a hypermetropia of 6 D.; no cupping of the disc. At the nasal side of the disc there are some small spots of choroidal degeneration.

In the left eye the pupil is irregularly dilated; some small spots of adhesions between iris and cornea; anterior chamber extinguished; diffuse opacity in lens; no details of the fundus can be made out; the surface of the cornea is steamy. June 13, 1892: Eserine, gr. $\frac{1}{16}$, and cocaine, gr. iii. ordered. September 16: Can distinguish objects with

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the left eye in the lower part of field; eye ground indistinctly seen. October 11, 1892: Fundus of left eye visible, + 4 D., nerve oval; only the nasal edge shows cupping; in this position the vessels bend sharply over the edge of nerve; patient recognizes hand. November 11, 1893: Iridectomy attempted; prolapse of ciliary body; intra-ocular hemorrhage; enucleation.

CASE III.—Mrs. E. H., aged 61. June 15, 1893.

Right eye, light perception.

Left eye, $\frac{6}{15}$.

Right eye has been painful for the past nine weeks; only sees daylight out of temporal side of right eye. Trouble started with severe neuralgic pains. The anterior chamber is extinguished; pupil is dilated ad medium, and oval in shape, T + 3; cornea hazy; fundus very dimly seen; a deep excavation can be made out extending to edge of nerve.

Left eye: Chamber shallow; tension normal; disc round; central excavation; no arterial pulse. June 27, 1893: Patient has been using cocaine alone for the past six days, 2 per cent. solution; tension in right eye normal; no pain or signs of irritation. July 26, 1893: Fundus clearly visible; crater-like excavation; v. = $\frac{6}{60}$; hypermetropia between 3 and 4 D. At first the cases were treated with eserine, in the strength of ⅛ gr. to ¼ gr. to a fluid ounce, but the pain, redness, and general distress were only partly, or not at all, subdued; cocaine was then added, and the above effects noted. Not a single disagreeable symptom was found to follow its use, but a marked degree of comfort was invariably afforded to the patient. In the second case cited, the marked reduction of the tension and clearing of the media inspired the hope that an iridectomy might be made to produce a permanent release of the tension of the eyeball. The week preceding the operation the severe pain had returned, and the sight again faded. Patient agitated, and straining violently, the cut was no sooner completed than the ciliary body prolapsed into wound. It would probably have been better to have continued the treatment by cocaine. Cases I and III are still continuing the treatment by cocaine, and the improvement in each case seems not to abate.

CASE IV.—Right eye, $\frac{6}{12}$.

Left eye, sees hand dimly, cornea hazy, eye-ground not clearly visible. The patient was ordered to use the following:

℞ Cocaine Hydrochlor. . . . . gr. ij
Eserine . . . . . gr. ⅛
Aqua . . . . . ʒ

at the end of two months the condition was as follows:

Right eye, $\frac{6}{9}$.

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Left eye, $\frac{6}{180}$, eye-ground clearly visible, deep excavation.

A fifth case is doing well under the same treatment, but the length of time is too short to make the evidence of much value.[1] The mechanism of its action can only be explained by hypothesis. At the outset we have a 2 per cent. or 4 per cent. solution of cocaine flooded over the cornea. By the laws of osmosis, a larger quantity of a weaker saline solution must pass out of the eye than the amount of cocaine solution which is absorbed. It is possible that the constitution of the intra-ocular fluid is altered in glaucoma, so that a larger percentage of saline matter in the aqueous or vitreous humors would create a larger influx of serum than the outflow of lymph. This condition would be principally important after the closure of the larger lymph spaces by pressure or adhesion, when the equilibrium of the intra- and extra-ocular fluids could only be affected by filtration through the membranes of the eye. The vascular depletion which cocaine produces in the conjunctiva and mucous membrane of the nose, is most probably effected on the vessels of the ciliary region and the vorticose veins of the choroid. The diminution of irritation necessarily produces a check in the exudation of serum, and when the cerebro-spinal system of nerve fibres is at rest the vaso-motor nerves start into activity. The deleterious effects of cocaine on the corneal epithelium are not witnessed here, so far as I have observed. I have seen this membrane, on the other hand, clear up wonderfully, so as to enable both the oculist and the patient to see something. The severe pain of glaucoma demands immediate relief; for this reason, if for no other, we would be justified in employing cocaine locally, and the indications for its employment are the severe pain and signs of inflammation. In simple glaucoma, without pain, or evidences of inflammatory action, it is not necessary to use cocaine, at least not alone. Preference should be given to the use of eserine and the performance of iridectomy. The class of cases that seems to be specially adapted for its use are the inflammatory glaucomas, either of primary or secondary origin.

It is here, in the field of ophthalmology, that we may thus render afresh a tribute to that most wonderful addition to modern therapeutics, which assuages the anguish of disease, and in throttling temporarily the demon of pain, benignantly extends to the oppressed organ a moment of grace in which it may rally its shattered forces of resistance. Whoever has watched the effect of cocaine on an inflamed eye must have been impressed by the marvellous transition from disease to apparent health. We might almost imagine the fairy wand of a magician to have wrought the change.

[1] After three weeks' treatment, the cornea is clear; a deep excavation is seen in each eye; vision has increased from counting fingers at one foot to 3-22.

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ARE COCCIDIA FOUND IN CANCER?

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The conception that carcinoma is a specific disease is by no means new. Indeed, it is as old as our definite knowledge upon such diseases, and has been the subject of so much speculation and experimentation that this one subject may be said to possess a literature of its own extending over a period of eight years, and comprising probably more than a hundred important books and journal articles. Nor does the etiology of carcinoma lose interest because it has seen two different scientific wars and has remained obscure, notwithstanding the many attempts made to explain it. It is of interest, too, to notice the parallel paths along which the thoughts of observers run, which is as well exemplified in this case as in any other. For several years, while bacteriology was in its infancy, there was a growing tendency to rank cancer among the specific diseases, due to these organisms, and as time passed on Scheuerlen, Schill, Kurbassoff and others described the specific bacteria to which the growth of the tumor might be assigned. Later, however, when more bacteria were known and after observers had become expert in recognizing them, one by one these cancer-bacteria passed away; having been shown to be accidental entities, having nothing at all to do with the genesis of the disease. From this work we finally learned that while there was no one micro-organism constantly present in cancer, in the degenerated and ulcerated portions, numerous harmless saprophytic, and occasional common pyogenic forms were found, to which we eventually were compelled to attribute the processes by which they were accompanied. Originating nearly at the same time, but developing more slowly, came the study of the lower animal forms as disease-producers. In the rabbit's liver, coccidia were found, and in Paget's disease similar forms were described by a host of observers, and as Paget's disease, or the chronic eczema of the breast, almost invariably leads to carcinoma, the acute thinkers soon drew inferences and began to seek for protozoa in the tumors. The results were gratifying. Various different bodies were seen and described, and the pathological literature teemed with reports of successful discoveries. All investigators, however, were not satisfied, and there rose up some, to claim that these bodies, if protozoa, which they doubted, were accidental contaminating organisms, and one of the latest papers tells us that they are in no way responsible for the growth of cancer, as there are many cancers without them; they cause the degeneration and poison-produc-

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tion in cancers, and are found only where the degeneration is going on, having nothing to do with its *a priori* origin. So positive are the assertions of this observer, that he teaches us that cancer without parasites is devoid of all its malignancy. Thus we see the parallelism between the bacteridian and protozoan theories of the origin of carcinoma.

The pioneers in the field were Brault[1] and Rappin,[2] the latter of whom succeeded, after the study of nineteen tumors (carcinomata, sarcomata and epitheliomata), in isolating a diplococcus which liquefied gelatine, grew upon agar-agar, stained by Gram's method and which, when inoculated into animals, produced suppuration, and in some cases a condition resembling infectious cancer, while the former contended against the bacteridian origin of the disease.

The matter was next taken up in Germany, where almost simultaneously Schill[3] and Scheuerlen[4] announced the discovery of specific organisms. The former discovered, by the use of Gram's method of staining, a diplococcus, but did not succeed in isolating it; the latter succeeded in isolating and growing the famous "bacillus of cancer." The work of the latter at once met with generous criticism, and shortly afterward Senger[5] published a most thorough study of the organism resulting in the conviction that inasmuch as it is not constantly present in all cancers, is present in many tissues not cancerous, and does not produce cancer when inoculated into animals, its specificity is without support. Moreover, a careful biological and morphological study of it shows it to be identical with the *bacillus mesentericus fuscus*, the ordinary potato bacillus.

Baumgarten[6] and Rosenthal[7] speedily confirmed the results of Senger, and showed the presence of the bacillus to be accidental. From this time the bacteridian theory rested a couple of years until Kubassoff[8] gave forth the discovery of a bacterium which fulfilled all the requirements of "Koch's Laws," and thus proved itself to be the true cause of cancer. This paper, strong as were its claims, made very little stir in the scientific world because the second epoch had begun the year before its publication, and all eyes were turned upon the animal para-

[1] Brault.—De l'origine non bactérienne du carcinoma. Archiv. gén. de méd., 1885, II, 586.

[2] Rappin.—Sur le microbe du carcinome. C. R. Soc. Biol. Paris, 1887, 8 s., IV 756.

[3] Schill.—Ueber den regelmässigen Befund von Doppelpunktstäbchen in carcinomatösen und sarkomatösen Gewebe. Deutsche med. Wochenschrift, 1887, XIII, 1034.

[4] Scheuerlen.—Deutsche med. Wochenschrift, 1887, No. 48.

[5] Senger.—Experimentelle und bacteriologische Untersuchungen zur Aetiologie des Carcinoms. Deutsche med. Wochenschrift, 1888, XIV, 234.

[6] Baumgarten.—Ueber Scheuerlen's Carcinom-Bacillus. Centralb. f. Bakt. u. Parasitenk., 1888, III, 397.

[7] Rosenthal.—Untersuchungen über das Vorkommen von Mikroörganismen in Geschwülstennamentlich Carcinomen mit besondere Berücksichtigung des Scheuerlenchen Carcinom-Bacillus, Zeitschrift für Hyg., 1888, V, 161.

[8] Kubassoff.—Ueber die Mikroörganismen der Krebsneubildung. Wiener med. Presse, 1890, XXXI, 1145.

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sites of which Malassez,[1] Albarran[2] and Darier[3] were writing. Bacteriological investigations ceased and we hear no more, except from Vincent, who asserted that the bacteria are the cause of the degeneration, ulceration and malignancy of tumors. Malassez studied an epithelial tumor of the jaw, and found in certain of the cells bodies which he took to be animal parasites. These were shown to Balbiani, who confirmed his suspicions that they were closely related to the coccidia. Albarran likewise found and demonstrated the same organisms, and Darier subsequently found coccidia, whose cycle of life corresponded very well with those of the well-known coccidia in the degenerated cells of Paget's disease of the nipple.

This subject was taken up in Germany by Thoma,[4] whose work was so thorough, and whose views, though expressed in a short paper unaccompanied by illustrations, were so clear that we can but conclude that his knowledge of the subject was about as broad as any to which we have since attained. He says: "These parasites (speaking of those which he found in the cells of carcinoma) appear as unicellular organisms from about 4–15 μ in diameter which can be made more distinct by the use of numerous dyes as hematoxylon and eosin, saffranin, alum-carmine, etc. They consist of protoplasm and a nucleus, a nucleolus being sometimes demonstrable. Their form is irregularly rounded or more frequently oval, sometimes it is like a whet-stone or like a ship (navicellenform). They possess strong refractive properties which draw attention toward them. These bodies occupy the nuclei of the epithelial cells in groups of 4–6, detracting considerably from their coloring capacity. The nuclei become hollow, bladder-like forms, in which, besides the parasites, some granular matter is demonstrable (coagulation ?). In other cases the unicellular organisms are enclosed in formed cavities beside the cells. The cavities in the nuclei sometimes contain larger and smaller chromatin masses which color intensely." . . . . . "Finally, finely granular or homogeneous masses of strong refractive properties are found in the cavities, which do not stain with the nuclear stains, but which enclose round, or slightly flattened nuclear bodies in considerable number. From this appearance one is disposed to think of encapsulated coccidia, but to me this significance is questionable."

Vincent,[5] who also found coccidia-like bodies, describes them as

[1] Malassez.—C. R. de la Société de Biol., Paris, March 23, 1889.

[2] Albarran.—Sur des tumeurs epitheliales coutenant des psorospermies. Ibid, 1889, 9 s., 1. 265.

[3] Darier.—Sur une novelle forme de psorospermose cutaneé; la maladie de Paget, du mamelon. Ibid, 1889, 9 s., 1, 294.

[4] Thoma.—Ueber eigenartige parasitäre Organismen in den Epithelzellen der Carcinome. Fortschritte der Medicin, 1889, VII, 413.

[5] Vincent.—Sur la presence d'elements semblables aux psorspermies dans l'epithelioma parinentaux. Trib. med., Paris, 1890, 2 s., XII, 152.

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encysted in the cells. Wickham[1] also wrote upon the coccidia found in Paget's disease, and figured numerous characteristic individuals. Close upon Wickham's heels came Nils Sjöbring[2] with a splendid paper, giving a careful review of the literature of the subject, a careful study of the parasites themselves and some very good plates. Sjöbring had no doubt that the bodies seen were parasites, and even traces their metamorphosis in part. Other observers found it more difficult to convince themselves that the bodies under consideration really were animal parasites. Schutz[3] regarded them as red corpuscles accidentally present in the protoplasm of the cells and in the nuclei. L. Pfeiffer[4] does not make any positive assertions upon the subject, but copied from the specimens of Jassinowsky a couple of figures which present an extraordinary appearance, one of which we have reproduced (see Pl. II, Fig. 2). Heukelom,[5] after examining 200 carcinomata, was undecided as to the nature of the bodies described by Thoma and found in great abundance by himself, and Hauser could find no characteristic features about those which he found in cylindrical epithelioma, to place them among the parasites. At the close of the year 1890 came a new announcement concerning the organism of cancer. Russell[6] had discovered the presence of small round and oval bodies in and among the cancer cells, possessed of a strong affinity for analine dyes, particularly for fuchsine. Not knowing the exact nature of the bodies, he wisely called them fuchsine bodies, but foolishly regarded them as the cause of the tumor, and because he found a few which seemed attached to each other like buds, regarded them as belonging to the yeasts. The further history of this will be developed later.

The same year Borrel[7] reviewed the work done upon the animal parasites found in cancer, and concluded that it was a mistake to consider these entities coccidia, and applied to them the term *pseudo*-coccidia, indicating that they were nothing more than peculiar forms of cell degeneration. It may be well to add that in a later paper (1892) Borrel was convinced that the bodies under consideration were parasites. Hache[8] wrote an article the same year, confirming the observations of Malassez, Albarran and Darier.

[1] Wickham.—Anatomie pathologique et nature de la maladie de Paget du mamelon. Archives de méd. expériment, et d'anat. pathologique, 1890, II, 47.

[2] Sjöbring.—Ein parasitärer protozoärtiger Organismus in Carcinomen. Fortschrit. der Med., 1890, VIII, 529.

[3] Schutz.—Die protozöen und coccidienartige Mikroörganismen in Krebszellen. Münchener med. Wochenschrift, 1890, XXXVII, 607.

[4] L. Pfeiffer.—Die Protozoa als Krankheitserreger. 1890.

[5] Siegenbeck van Heukelom.—Intracelluläre Gebilde bei Carcinomen. Verhandelung d. zehnte internat. med Cong., 1890, Berlin, 1891, II, pt. 3, 108.

[6] Russell.—An Address on the Characteristic Organism of Cancer. Brit. Med. Journal, 1890, Vol. II, 1356, and also Wien. med. Bl., 1891, XIV, 4-6.

[7] Borrel.—Sur la signification des figures décrites comme coccidies dans les épithéliomes. Archiv. de méd. exper. et d'anat. Path., 1890, Vol. II, 786.

[8] Hache.—Les coccidies dans cancers epitheliaux. C. R. Soc. de Biol., Paris, 1890, 9 s., II, 637.

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Klebs[1] interested himself in this subject to the extent of a long experimental work, in which many rats were inoculated. The inoculations failed, but in the fragments of tissue removed from the inoculated animals, he discovered masses of hyaline material, resulting from the degeneration of the cells. Comparison led him to believe that the so-called parasites were simply globules of hyaline degeneration.

Ribbert,[2] and almost at the same time Cornil,[3] declared that there were no parasites present in cancer, but that the bodies described as such were due to degeneration, the former explaining the encapsulated and occasional radiate appearance thus: "By the comparison of numerous microscopical pictures, one may conclude that the bodies lie in part or entirely in the encapsulating cell (such appearance being most common in the epithelial pearls). They take on a thickened consistence, and are at first granular, then homogeneous, in appearance. The lessened size thus brought about, leads to the development of spaces, vacuoles, between them and the surrounding cell, in which they lie in an eccentric position. A double contour of the vacuole can easily be mistaken for the borders of the encapsulating cell, and the increased condensation not infrequently produces radiations of the protoplasm, sometimes only at the edge, sometimes reaching to the centre.

Steinhaus[4] produced two excellently illustrated papers, one in 1891 and one in 1892, illustrative of the cellular enclosures of cancer, but hesitated to express an opinion about them.

Dean[5] now took up the consideration of Russell's organism, and was supported by Kanthack[6] in concluding that the fuchsine bodies are not micro-organisms, but are the result of hyaline degeneration.

Bowlby[7] and Hutchinson[8] read papers before the Medico-Chirurgical Society, in which they described coccidia found in Paget's disease, corresponding to those described by Darier. At the same meeting the nature of these bodies was disputed.

Stroebe[9] wrote an excellent paper upon these parasites, but hesitated to express a positive opinion, as nothing has been proven concerning them.

[1] Klebs.—Deutsche med. Wochenschrift, 1890, No. 11.

[2] Ribbert.—Ueber Einschlüsse im Epithel der Carcinoma. Deutsche med. Wochenschrift, 1891, No. 42.

[3] Cornil.—Mode de multiplication des noyaux et des cellules dans l'épithélioma. Jour. de l'anat. et de la phys., 1891, 91.

[4] Steinhaus.—Ueber Carcinoma-Einschlüsse. Virchow's Archives, Bd. CXXVI, p. 533, 1891. Weitere Beobachtungen über Carcinom-Einschlüsse. Ibid, Vol. CXXVII, p. 175, 1892.

[5] Dean.—Dr. Russell's Characteristic Micro-organism of Cancer. Lancet, 1891, I, 768.

[6] Kanthack.—A Characteristic Organism of Cancer. Brit. Med. Jour., 1891, I, 579.

[7] Bowlby.—Thirteen Cases of Paget's Disease of the Nipple, with Special Reference to the Causation of the Malady by Psorosperms. Brit. Med. Jour., May, 1891, p. 1070.

[8] Hutchinson (J., Jr.).—Psorosperms in Chronic Eczema of the Breast (Paget's Disease). Trans. Path. Soc. of Lond., Vol. XLI, 1890, p. 214.

[9] Stroebe.—Zur Kentniss verschiedener celluläre Vorgänge u. Erscheinungen in Geschwülsten. Beitrage zur path. Anat. u. allg. Path., 1891, XI, No. 1.

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Shattock and Ballance[1] also did an experimental work, inoculating many animals, but still not satisfying themselves of either the infectious nature of the disease or of the existence of a specific microorganism.

Cazin,[2] in two papers, carefully reviews the whole subject, and concludes that the organisms described by Russell and others are the results of cellular degeneration.

Fabre-Domergue[3] found the bodies described and gives a description of the required technique and of the bodies themselves, concluding that they are pseudo-coccidia resulting from cellular degeneration. A later paper confirms the first.

Noeggerath[4] published an excellent atlas of the anomalous appearances of cancer cells; is very guarded in his language, but evidently does not regard them as parasites. He quotes Welch in stating that they are masses of keratin, eleidin or keratohyalin, degenerated leucocytes, with or without fragmentation of the nuclei, or scattered fragments of nuclei of leucocytes.

Foà[5] found granular bodies enclosed in carcinoma cells, and demonstrated them best by the use of the hemotoxylon. They were of varied size and configuration, and might easily be mistaken for leucocytes. He is of the opinion that they bear a distinct etiological relation to cancer.

Podwyssozki and Sawtschenko[6] seem satisfied that bodies which they found in the interior of cancer cells are parasites, but seriously question their etiological significance. Sawtschenko,[7] writing later, describes bodies which seem to differ somewhat from those first described, but continues to regard them as parasites.

Soudakewitch[8] has given us two handsomely illustrated articles, descriptive of his observations, and is supported by Metschnikoff, in asserting them without question to be parasitic protozoa. A study of his plates is well worth the time and trouble it costs.

Ruffer and Walker[9] review the literature carefully in their excel-

[1] Shattock and Ballance.—Med. Press and Circular, London, September 9, 1891.

[2] Cazin.—Contributions à l'étude des dégénérescences cellulaires. Jour. de l'Anat. et de la Phys., 1890.

[3] Fabre-Domergue.—Sur l'origine parasitaire du cancer. Cong. Franc. de chir. Proc., etc., Paris, 1891, v, 503; and later, C. R. de la Société de Biol., Paris, April, 1892.

[4] Noeggerath.—Beiträge zur Struktur u. Entwickelung des Carcinoms. Wiesbaden, J. F. Bergmann, 1892.

[5] Foà.—Ueber die Krebsparisiten. Centralb. f. Bakt. u. Parasitenk., Vol. II, No. 6.

[6] Podwyssozki and Sawtschenko.—Ueber parasitismus bei Carcinom nebst Beschreibung einiger in den Carcinom geschwüllen schmarotzenden Protozoen. Centralb. f. Bakt. u. Parasitenk., 1892, XI, Nos. 16 and 17.

[7] Sawtschenko.—Weitere Untersuchungen über schmarotzende Protozoen in den Krebsgeschwülsten. Centralb. f. Bakt. u. Parasitenk., 1892, XII, No. 1.

[8] Soudakewitch.—Recherches sur le parasitisme intracellulaire et intranucleaire chez l'homme des neoplasies cancereuse. Ann. de l'Institut Pasteur, 1892, VI, 145, 545.

[9] Ruffer and Walker.—Parasitic Protozoa in Cancerous Tumors. Journal of Pathology and Bacteriology, 1892, I, No. 2.

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lent article, and endeavor to trace in the parasitic organisms which they describe a life history. In a later paper Walker and Plimmer[1] show that the parasite is first observed as a small body in the interior of the nucleus. This becomes larger, and soon a central spot or nucleus is observed in it. As the body grows the nucleus becomes distended, and eventually bursts, allowing the parasite to escape into the protoplasm, where sometimes a large number of the parasites may be seen. Occasionally the parasites exit from the cell, but beyond what is given above they have determined nothing.

Woodhead,[2] in the "Morton Lecture on Cancer," for 1892, supports the opinions of Ruffer and Walker, and attempts to explain the etiological relations between these parasites and cancer by comparison with the coccidiosus of rabbits.

Montgomery[3] goes over the whole ground pretty thoroughly, and brings in his verdict as "not proven." He admits the possibility of the presence of parasites, but says that degeneration invites parasites.

Delépine,[4] whose researches upon coccidia are well known, after comparing his specimens with those of Ruffer, and the drawings of Soudakewitch, has, no doubt, but that his specimens are identical with them, and, therefore, feels justified in calling upon those observers to "*prove the parasitic nature*" of the bodies in question. He thinks the only proof they can offer to be one relying upon certain staining reactions, and thinks such criteria insufficient, because:

"(*A*) The staining reaction is unnecessary in such a case, because (1) the bodies are so large and distinct that they can easily be studied with a moderately high power; (2) ordinary methods of staining are quite sufficient; (3) Dr. Ruffer himself says these bodies have not always the same reaction, the bodies described and demonstrated by him being extremely variable in that respect; (4) because the same variability of reaction can be observed in products resulting from various protoplasmic degenerations, as may be easily recognized by studying the appearances presented by cells undergoing degeneration, especially the colloid.

"(*B*) The evidences of multiplication which are adduced are such as might easily be produced by endogenous multiplication of cells and degenerative changes. I do not say that the bodies in question are not parasites. I only say that certain endogenous productions are

[1] Walker and Plimmer.—Parasitic Protozoa found in Cancer. Journal of Pathology and Bacteriology, 1893, Vol. 1, No. 4.

[2] Woodhead.—The Morton Lecture on Cancer and Cancerous Disease. Brit. Med. Jour., 1892, 1, 954.

[3] Montgomery.—Parasite-like Bodies in Cancer. Pacific Med. Journal, San Francisco, 1892, xxxv, 385.

[4] Delépine.—Protozoa and Carcinoma. Brit. Med. Jour., 1892, II, 674.

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much like them, and that no one has proved that these bodies have a life independent of that of the cell. Nobody has shown in them evidences of those stages of development which have been shown to exist in other parasitic protozoa, and are so characteristic of coccidia. I, therefore, consider that even with the support of such an eminent authority as Metschnikoff, neither Soudakewitch nor Ruffer has any more right for the present to call the bodies to which they have attracted attention, either protozoa or parasites, than those who have described the same bodies previously."

Karg[1] also argues against the protozoan theory of the bodies in question, and thinks them young cells or degenerated cells, and Müller,[2] in discussing fragmentation, criticises Ruffer and Walker as having described the results of indirect fragmentation in hydropic cells as parasites.

Plimmer,[3] writing alone, confirms the observations of Ruffer and Walker.

In December, 1892, Clarke[4] communicated to the Pathological Society of London a paper describing coccidia from a squamous epithelioma of the nose, and gave a graphic description of their growth and development, which probably must be taken with some allowance for imagination. This observer says the bodies "were unmistakably psorosperms, the idea of degeneration being absolutely negatived by the beautiful nuclear figures presented by some of the peculiar cells, and by clear evidences of the biologic processes." . . . "The large cells, at a certain period of their existence, showed an extension by the nuclear network which eventually filled the whole cell, and this then divided into a great number of ameba, which were set free by rupture of the capsule of the mother cell, if it had not disappeared already. Conjugation previously to the ameba formation was described." . . . "There were many large psorosperms lying within epithelial cells, the parts of which adjoining the parasites were modified into capsules. In sections stained with picro-carmine, and mounted in glycerine, these capsules were seen to possess a beautiful radiated structure to the protoplasm of the psorosperm, a semblance which on closer examination disappeared.

Korotneff[5] made studies, this year, of the parasites occurring in a carcinoma labii, and describes the micro-organism of cancer as the

[1] Karg.—Ueber das Carcinom. Deutsche Zeitschrift f. Klin. Chirurg., 1892, Bd. XXXIV, s. 133.

[2] Müller.—Virchow's Archives. Vol. CXXX, Heft. 3.

[3] Plimmer.—A Note on the Parasitic Protozoa Lately Found in Cancer. Brit. Med. Jour. 1892, Dec. 10, p. 1277.

[4] Clarke.—Psorosperms in Squamous Epithelioma. Lancet, Dec. 31, 1892, p. 1496.

[5] Korotneff.—Rhophalocephalus Carcinomatosus. Centralb. f. Bakt. u. Parasit. 1893, XIII, No. 11-12, Mar. 23.

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rhophalocephalus carcinomatosus. The adult form of the organism we have endeavored to illustrate on Plate I, Fig. 7. It has a cestoid-like appearance, possesses an expanded head and an elongate body. The head contains a nucleus, which has no definite shape, and colors red by Biondi's stain, while the remainder is orange. The body is sharply circumscribed, without pseudopods, and consists of finely granular protoplasms. The entire appearance is like that of the gregarinidæ. In the surroundings of the fully-developed parasite numerous young are found. These are elliptical, or club-shaped, with a coarsely granular spot in the centre, and are enclosed in cancer cells, which become larger and develop a spherical shape. The young parasites have the power to divide, and so increase the centrifugal pressure, by which means epithelial pearls are formed. He believes that in the centre of every pearl, one or more parasites are to be found. The growth of the parasite causes changes in the central cells, which degenerate, and allow the parasites to swarm in the detritus. The development is: (1) Coccidia-like forms develop in and escape from the perfect individual. Within these, zoöids develop, these being oval and pointed. The zoöids are not the only derivations of the coccidia, but sporozoids—bean-shaped bent bodies, consisting of hyaline cysts, containing protoplasm without a nucleus—corresponding to the sickel-shaped bodies of Bütschli, and the *corps falciformes* of Balbiani are also found. When the zoöid becomes freed from the coccidium, and after it enters an epithelial cell, which is the next step, it forms an encapsulated coccidium, or else a gregarina form. The sporozoid becomes flat, sends out numerous pseudopods in all directions, thus becoming ameboid and entering a cell. Sometimes these amebe do not enter cells, but developing between the cells, create for themselves spaces (cysts) whose walls are formed of the protoplasm of neighboring cells. In the interior of these amebe sporozoids and zoöids eventually develop. The zoöids always develop into coccidia, the sporozoids into amebe.

In discussing the possible etiological significance, attention is called to the fact that the cells occupied by the parasites increase in size without dividing, this also being true of neighboring cells, hence the carcinoma does not grow through the influence of the parasite. The cancer cells grow best where the parasites are fewest. The regressive changes are due to the presence of the parasites, and hence the malignancy. A carcinoma without parasites is as harmless as other epithelial growths like hair, nails, etc., etc.

We are told by most of the above observers that the ordinary methods of preservation are not sufficient to show the parasites of cancer. After trying various reagents, Ruffer and Walker gave up the use

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of alcohol altogether, and found the best results to follow hardening in Flemming's solution or concentrated solutions of corrosive sublimate.

B. 1 % chromic acid in water 15
2 % osmic acid in water 4
Glacial acetic acid 1

In their first paper, however, they speak of having a series of specimens showing the parasites, hardened in Müller's fluid:

B. Bichromate of potash 1
Sulphate of soda 2
Water 100

osmic acid, alcohol, etc., etc. Soudakewitch uses 1 per cent. osmic acid, and recommends immersing the fragments, which must be *very small*, in Flemming's solution, for two days, then in Müller's fluid three to five days. After being thoroughly washed in water they are hardened by the use of graduated alcohols.

The beautiful figure with radiations shown on Plate II, Fig. 2 (see Pfeiffer), received the following treatment: Fixed in Flemming's solution, twenty-four hours; washed in water, twelve hours; hardened in 70 per cent. alcohol, twelve hours, 100 per cent. alcohol, twenty-four hours; oil of cloves, eighteen to twenty-four hours; xylol, twelve hours; xylol paraffine, four to ten hours; paraffine, twelve hours; saffrain stain, twelve hours.

This naturally leads us to the subject of staining the parasites. Russell demonstrated his fuchsine bodies by immersing the sections taken from water in a saturated solution of fuchsine in 2 per cent. carbolic acid water, for ten minutes or longer. The specimen is then to be washed in water for a few minutes, then washed in absolute alcohol for thirty seconds, and from the alcohol put in a 1 per cent. solution of Grübler's iodine green in 2 per cent. carbolic acid water. It is allowed to remain in this solution (well spread out) for five minutes, is then dehydrated rapidly in absolute alcohol, cleared in oil of cloves, and mounted in Canada balsam. Many of the bodies described by Russell stain equally well by Gram's method.

Ruffer and Walker recommend Biondi's reagent as prepared by Grübler, of Leipsic. One gramme of this powder is dissolved in 80 c.c. of water, and 15 c.c. of a .5 per cent. solution of acid fuchsine added to it. The sections, after having been allowed to remain in this solution for an hour at least, are washed in water for thirty seconds, in 95 per cent. alcohol for one minute, absolute alcohol, two to five minutes, xylol, two to fifteen minutes, and finally mounted in Canada balsam, dissolved in xylol. After such treatment the nucleus of the cell is

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green, the nucleolus reddish-brown or red, while the protoplasm is orange red. On the other hand the nucleus of the parasite is red, and the protoplasm assumes a light Cambridge-blue color.

Soudakewitch prefers the use of hematoxylon and eosine.

After having tried nearly all the methods suggested, we feel convinced that if the specimen be secured fresh, and treated carefully, very good results can be obtained by fixing very small fragments in absolute alcohol, or Müller's fluid. Flemming's solution is undoubtedly better, if at hand, but is not indispensable. Indeed, we have been able to demonstrate the parasites very well in ordinary specimens prepared for class use by hardening in 80 per cent., then 95 per cent., alcohol. It certainly is best to make the fragments of tissue small, in order to allow the reagent to permeate and act upon the cells throughout the tissue. While we have used Biondi's stain many times, we do not see that it possesses any advantage over hematoxylon and eosine, and as it is much more difficult to handle we do not recommend it, but always use Delafield's hematoxylon, made from the following formula: Dissolve 20 grammes of alum in 200 c.c. of water; 2 grammes of hematoxylon crystals in 12.5 c. c. of 95 per cent. alcohol. Pour these solutions together, shake well, then expose to strong sunlight in a wide-mouthed, uncorked bottle for four days. Filter and add 50 c. c. of glycerine, and 50 c.c. of methylic alcohol. Filter again, and then cork well. The older the mixture is, the better it will color. The very best results are obtained by adding one or two drops of this solution to a watch-glass full of water, stirring well, then placing the specimen taken from water, well spread out, in the dilute stain from twelve to twenty-four hours, according to the color desired. After staining in this slow fashion, the specimen should be washed several times in clean changes of water, then dehydrated in 95 per cent. alcohol, then 100 per cent. alcohol, cleared in xylol or carbol-xylol, and mounted in Canada balsam dissolved in xylol. The numerous specimens which have been figured were stained by this method, a little eosine being dissolved in the absolute alcohol to give a counter-stain.

In order to cut the specimens we do not see that it makes any difference whether they are imbedded in celloidin or in paraffine, except that the latter will allow thinner sections to be cut; but if the specimen be small and thoroughly permeated with the celloidin, a sharp knife will cut sections thin enough to show well. Indeed, even the care which has been urged is not absolutely necessary, for in ordinary sections of average thickness we have seen some very clear, distinct figures.

The results of our examination of about fifty different cancers by the above methods have shown that without doubt there are present in

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the cells and in their nuclei numerous bodies such as have been described by Soudakewitch and Ruffer and Walker, and a glance at Plate I, where Fig. 8–25 represent those forms found in our specimens most nearly conforming to theirs, will convince almost any one that some, at least, of these bodies are identical with those in Figs. 1 and 5. The histology of these appearances is that of a clear round body present in the protoplasm of the cell, separated from it by a sharply circumscribed border and at times having the appearance of a distinct separation between the body and the cell (see Figs. 17 and 20, the same less distinct in Fig. 16) as if the body lay in a vacuole, which, indeed, it seems to do in some cases, Fig. 20 being a cell containing a large vacuole in which one of them is seen. The centre of these bodies is generally occupied by an indistinct nucleus with rather poor coloring properties, and at times the protoplasm is slightly granular. In other cases there is no nucleus, but the whole mass is granular. When the enclosed bodies are large the nucleus of the cell receives an indentation corresponding to the portion contiguous to it. The inclosure rarely occupies the nucleus, and is but rarely found outside of the cell. Fig. 21 shows such a body occupying a space in the connective tissue, with the nucleus of an epithelial cell below. In our experience it is rather rare to find more than one body in the same cell. In all the affected cells the nucleus seems to suffer from malnutrition, to have assumed a distorted, shrunken shape and, unlike other observers, in not one of our specimens could an enclosure be found in a cell whose nucleus was in the process of division. Again, unlike Ruffer and Walker, the enclosures were found to be quite numerous where the cancer was well grown, and much less so at its periphery. Cells thus affected are much less prone to occur singly than in groups, and not infrequently one stumbles upon areas in which every cell is affected. Ruffer and Walker point out that the affected cells not infrequently are vacuolated. Our own observations show us that vacuolation is common in neighboring cells rather than in those affected with these enclosures, though sometimes these, too, are thus affected. No small enclosures were found in the nuclei except that shown in Plate II, Fig. 4, but this was rather a form of vacuolation than of the other disease. All endeavors to find figures such as Plate I, Fig. 6, borrowed from Soudakewitch, and Plate II, Fig. 2, from Pfeiffer, have failed.

Unquestionably these observations go to confirm those of Thoma and his many followers, that there do exist in the cells of carcinoma bodies which seem distinct from them and which resemble protozoa. When we come to the question of the nature of these bodies we reach a much more difficult matter. Attention was first called to these bodies because of those described as psorosperms in Paget's disease,

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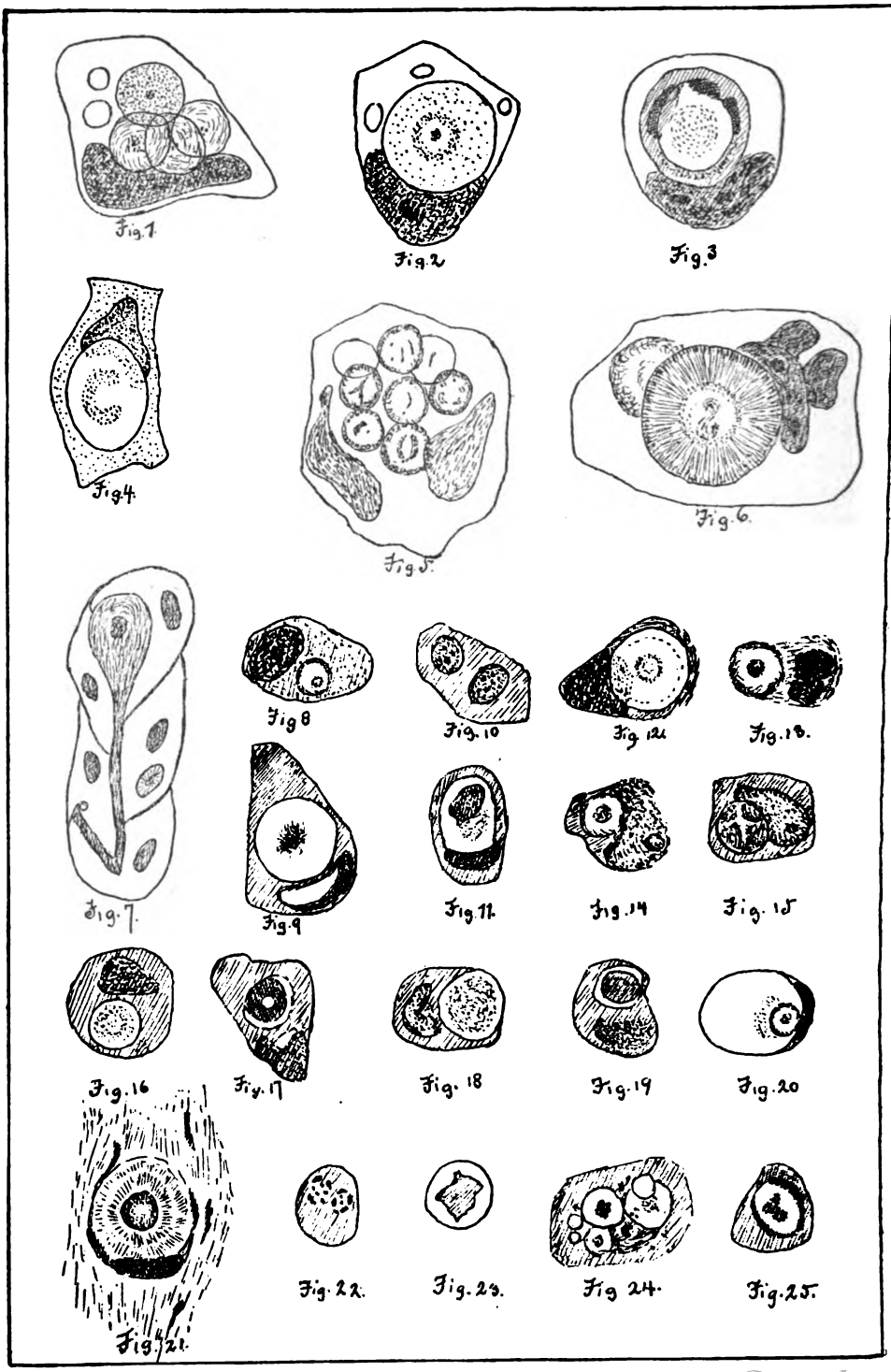

PLATE I.

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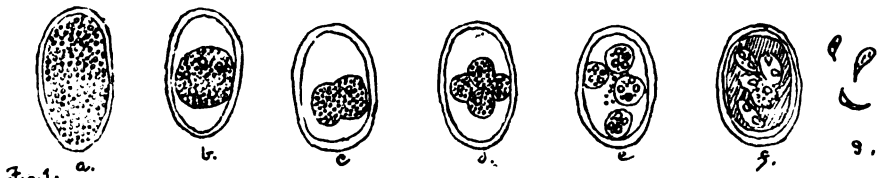

Fig. 1.

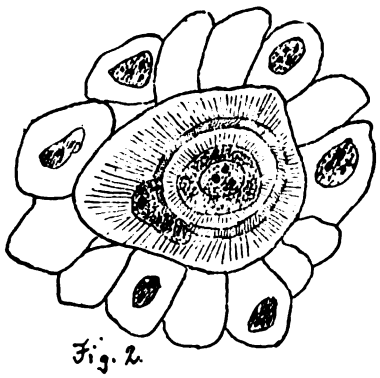

Fig. 2.

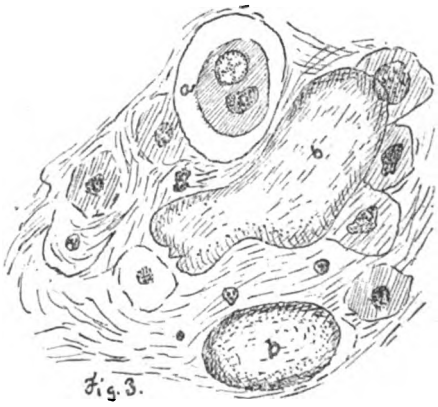

Fig. 3.

Fig. 4.

Fig. 5

Fig 6

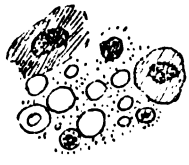

Fig 7

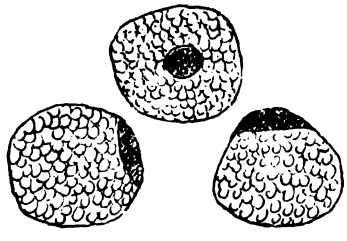

Fig 8

Fig 9

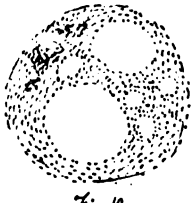

Fig. 10.

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and attention was called to them because of certain homologies thought to exist between them and the coccidiosus of the rabbit.

The coccidial disease is, however, a very different matter, and if we enter into a short account of it, it will only aid in making the nature of the matter under consideration more clear. Metschnikoff[1] gives the following very concise account of the parasites in this disease: "In order that they may give the disease to fresh rabbits the oval coccidia must first undergo a definite transformation, which only takes place outside the organism. In sand, in earth, or in water, in suitable conditions of temperature (15°–25° C.) and of aeration, the contents of the coccidia divides into four cells, and is transformed into four spores, provided with a very resistant external covering. Each spore incloses two falciform and very delicate embryos which give birth to new parasites and thus engender the terrible disease when swallowed in polluted food; the sporiferous coccidia penetrate into the digestive canal of rabbits. The envelope of the spore protects the falciform embryos against the action of the gastric juice, and allows them to pass into the intestines and into the liver. The epithelial cells of the intestines and of the biliary ducts become the seat of the infection. The young coccidia, under the form of small round bodies, insinuate themselves into the protoplasm of the epithelial cells, where they grow and become transformed into oval parasites representing the adult form. But side by side with this cycle of development there exists another, discovered by R. Pfeiffer, of Berlin. The round bodies divide into a large number of segments, which become transformed into a stage of growth the meaning of which is not yet determined. It is possible that these forms in growing propagate the infection in the organism of the rabbit attacked with the coccidiosus. They serve to increase the auto-infection."

When we consider this series of developmental changes, which are pretty much the same for all the parasites of this class, we see at once that what we know about the coccidia of the rabbit is not so much its exact appearance, or its peculiar reactions toward staining reagents; these, indeed, come in in a subordinate rôle, but the great thing is its cycle of development. Who has shown us such a cycle occurring in the protozoan of cancer? It is true that Clarke contributed something of this kind to the Pathological Society of London, but there his communication fell rather flat, and no one has since substantiated it. All the knowledge we possess of the cancer organisms have to do with their appearance and staining, of which the first is deceptive and the last unimportant and irregular. We feel with Delépine, that there is no weight of proof attached to any of the reports we have

[1] Metschnikoff.—Carcinoma and Coccidia. Brit. Med. Jour., 1892, Dec. 10, 1274.

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received, and feel the necessity of proof before we can believe that these bodies are indeed protozoa.

But if they are not protozoa, what are they? This is a question which will at once be raised by everyone, and it is one that is peculiarly difficult to answer. Many have tried to meet it, and the literature is full of explanations concerning them. The truth probably is that, like the bacterium termo, which was once a species in itself, we have to do with a variety of different things. This seems more likely than that these bodies are a species of coccidia which are the etiological agent productive of cancer, or that we are on the verge of a great discovery in regard to the etiology of cancer.

Leucocytes—*i. e.*, wanderzellen—are of very common occurrence in cancer, and in almost all forms of the tumor one or more forms can be found among the cells and in the cells. If there is any truth in the doctrine of phagocytosis, we must admit that leucocytes in the protoplasm of other cells will be acted upon by the larger cell. That epithelial cells sometimes behave as phagocytes is a common observation in anthrocosis and catarrhal pneumonia. What appearances may not be exhibited by partly digested leucocytes? Plate I, Fig. 24, shows a cell taken from an area very rich in leucocytes, and containing a number of them which are very distinct in their characters, and some that are not so distinct. Certain observers tell us that we should make no error here because of the staining properties of leucocytes, which are very distinct. The statement, of course, refers to normal and not peptonized, hydropic or disintegrating leucocytes, and we do not believe that the action of stains can be regarded as at all conclusive. In fine, we believe that not a few of the parasites described are altered leucocytes.

Vacuole formation is common in cancer cells. Already the co-existence of vacuoles and the so-called parasites has been pointed out, and a series of illustrations (Plate II., Fig. 4) is given to show the easily traced stages of this change, terminating either as a collection of droplets replacing the cell, or as one enormous cavity. Just what the nature of the vacuolar change is, is difficult to decide, and for want of positive evidence we have elsewhere[1] called the same process occurring in sarcoma cells, *hyaloid degeneration*. There is little doubt but that simple vacuoles are pointed out as empty parasitic cysts in many instances. Colloid metamorphosis (Plate II, Fig. 10), in the main, is unlike the appearances presented by these bodies, and mucous degeneration (see Plate II, Fig. 8) is totally different. Amyloid degeneration, though sometimes present in carcinoma, is rare, and the appearance presented is totally different from the parasites so called (compare

[1] McFarland.—The Giant Cell of Tubercle. Internat. Med. Mag. Vol. I, No. 10, 1892, p. 1040.

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Plate II, Fig. 9). There remains, however, another form of degeneration which bears distinct resemblance to the appearances presented, and which is no doubt responsible for the majority of cases; this is the *hyaline*. This form of degeneration, when general in a cell, causes the nucleus to become unusually prominent by the disappearance of the protoplasmic granules. Later the nuclein filaments disappear, and eventually the whole cell may become a homogeneous, semi-transparent mass. The process is, however, perhaps more often local than general, and causes the formation of clear globular masses in the protoplasm, and even, at times, in the nucleus. It is to this form that we refer when we speak of hyaline degeneration. The hyaline substance is tingeable with the analine dyes, and is also capable of condensation under various reagents, so that globules of this material shrunken away from the protoplasm of the cell, leaving a narrow space between, might easily be mistaken for a parasite, especially if a small granular collection near the centre caused a pseudo-nuclear appearance. One of the principal reasons for considering cancer to be an infectious disease is the metastasis which is so frequent. The dissemination of tuberculosis is known to depend upon the distribution of tubercle bacilli, and hence it is argued—cancer, which is also metastatic, probably depends upon the dissemination of some germ. In this connection it must be urged, and we have elsewhere[1] called attention to it in a different connection, that while the tubercle is an inflammatory affection, and hence can easily form in any organ, wander-cells, connective tissue cells and leucocytes all being present in greater or less number, cancer, which is an epithelial hyperplasia, has its growth from cells which in many instances have been brought to the affected part and there propagated. In the lymphatic glands, for instance, no epithelium exists, yet here the metastases are most frequent. We were unfortunate in not having at hand a large collection of secondary tumors from non-epithelial areas, but in the few which were at hand, fewer of the pseudo-parasites were present than were observed in the mammary tumors, and those present were seen almost exclusively in the most hyperplastic portions, where the epithelial growth was most advanced. From all this evidence we are obliged to conclude that the bodies found in cancer cells and described as parasites, are not of such nature, but are phenomena occurring from disease and degeneration of the cells, and have nothing to do with the etiology of cancer. Montgomery has shown that degeneration invites parasites, and while we do not deny the possibility of the presence of animal parasites as well as bacteria in the ulcerated and degenerated portions of epithelial tumors, we are obliged to regard even this as unproven.

[1] McFarland.—Alveolar Formation in Cancer. Internat. Med. Mag., Aug., 1893.

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DESCRIPTION OF PLATES.

PLATE I.

FIG. 1.—Four parasites in the interior of an epithelial cell from cancer ventriculi. Taken from Ruffer and Walker.

FIG. 2.—One large parasite and several vacuoles. From the same.

FIG. 3.—A multinucleated leucocyte surrounding a parasite. Specimen from cancer of the breast. From Ruffer and Walker.

FIG. 5.—A number of parasites occupying the same cell. Cancer of the breast. From Soudakewitch.

FIG. 6.—A large radiate parasite. From Soudakewitch.

FIG. 7.—Rhophalocephalus carcinomatosus. From Korotneff.

FIG. 8.—A so-called parasite occupying the protoplasm of a cell from a mammary cancer. (Stain—hematoxylin and eosin. Zeis, 1-12 oil immersion, ocular 4.)

FIG. 9.—A larger body of similar nature encroaching upon the nucleus. (Stain, etc., same.)

FIG. 10.—An epithelial cell with two nuclei, introduced for comparison. (Stain, etc., same.)

FIG. 11.—A cell with two nuclei, one of which occupies a vacuole. There can be no doubt but that this is the nucleus of an epithelial cell. See cell above for comparison. (Stain, etc., same.)

FIG. 12–21.—Various cellular inclosures, all from cancer of the breast. (Stain, etc., same).

FIG. 22–23.—Smaller bodies in the cellular enclosures, which are drawn without the protoplasm in order to economize space. (Stain, etc., same.)

FIG. 24.—Cell occupied by a number of bodies of which several are leucocytes. This was taken from an area exhibiting much inflammatory infiltration. (Stain, etc., same.)

FIG. 25.—Nuclear enclosure. (Stain, etc., same.)

PLATE. II.

FIG. 1 a.-g.—Illustrating the various stages of coccidium oviforme. From L. Pfeiffer.

FIG. 2.—Protozoon parasite from a cancer of the penis. Also from L. Pfeiffer.

FIG. 3.—From a degenerating carcinoma:

a. Epithelial cell in an open space. In the protoplasm an enclosure is visible.

b. Hydropic nuclei which have attained giant proportions, and around which no protoplasm can be seen.

FIG. 4 a.-g.—Vacuolization of cancer cells. Colloid metamorphosis?

FIG. 5-7.—Extremes to which the above process can lead.

FIG. 8.—Mucous degeneration from a carcinoma of the rectum.

FIG. 9.—Amyloid degeneration of a liver cell, introduced for comparison.

FIG. 10.—Colloid degeneration. Copied from Delafield and Prudden.

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CYSTITIS IN THE FEMALE, WITH SPECIAL REFERENCE TO TREATMENT.

By John C. Heisler, Ph.G., M.D.,

Assistant Demonstrator of Obstetrics, and Prosector to the Chair of Anatomy, University of Pennsylvania.

The term cystitis is used here to designate those cases presenting, as their chief symptoms, frequent and excessively painful micturition, attended with marked vesical tenesmus, the urine being either offensive when passed, or speedily becoming so, and containing mucus or pus, or both, and sometimes blood. Abruptness of onset, slightly greater intensity of all the symptoms, with more or less constitutional disturbance—fever with its concomitant perversion of bodily functions—mark a case as belonging to the *acute* variety of the disease, while cases of more insidious development, unattended by elevation of temperature, are said to be chronic. It should be borne in mind, however, that tenesmus and frequency of micturition may be quite as distressing in so-called chronic cases as in those of the acute type.

I do not purpose dwelling upon the etiology of the affection further than to state that in one of my cases the exciting cause seemed to be potassium chlorate, which had been prescribed in five-grain doses four times daily for a "cold," and which had been taken by the patient, contrary to instructions, without dilution of the saturated solution. The agency of this drug, in setting up irritation in the genito-urinary tract, was rendered all the more probable to my mind by the fact that a male patient, with a chronic urethral discharge, for whom also I had prescribed a mixture containing potassium chlorate, gave evidence of marked urethral irritation—the passage with pain, of blood-tinged urine. This irritation subsided when the use of the drug was discontinued, and reappeared each time it was resumed.

Few diseases are more intractable than chronic cystitis, and, perhaps, fewer still are more distressing. The course of the treatment, usually outlined in the text-books, is doubtless so familiar to every one that a repetition of it here would be superfluous, and yet if one consults a text-book for a definite plan of treatment, one cannot but be struck with the lack of definiteness in the instructions given. The reason, apparently, that so many of the chronic cases are chronic is, that remedy after remedy is tried in a rather empirical fashion, comparatively little attention being paid to diet, condition of digestive organs, state of reproductive system, etc. Given then, a case of cystitis in a female, the first duty of the physician is to ascertain, if possible, its cause or causes—for the causes may be many. Probably,

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in almost every case, certainly in the majority, careful inquiry will disclose some error in diet or defect in digestion. Prominent among the former, is the habit of partaking freely, almost inordinately it may be, of acid fruits and of highly stimulating condiments. The sparing use of drinking water may be, at least, a powerful predisposing cause of bladder irritation, and if the patient is a heavy feeder, or is addicted to the free use of acids and condiments, will certainly very greatly aid in producing the disease. Gastric digestion, intestinal digestion and bowel evacuations having each received the physician's attention, he may next proceed to a physical examination of the pelvic organs. Whether there is flexion, version, descent, or other morbid condition of the uterus, should be noted, as well as the state of the ovaries. Tenderness of the urethra should be inquired for, by passing the finger along the roof of the vagina with slight pressure. It should be borne in mind that anything keeping up pelvic congestion will interfere with the cure of the cystitis. That microscopical and chemical examination of the urine should always be made, goes without saying.

The chief indications for treatment are: (1) To remove any discoverable source or sources of irritation; (2) to render the urine bland; (3) to relieve pelvic congestion if it exist; (4) to treat locally the inflamed mucous membrane; (5) to improve the patient's general health; (6) to secure rest for the patient by keeping her in bed, at least in all acute cases.

To take up these indications seriatim:

(1) *The Removal of Sources of Irritation.*—The removal of those irritating agencies, which act through the medium of the urine, can be well effected by an exclusive diet of milk, which, of course, implies the cutting off of acids, pepper, etc. Mechanical causes, such as vesical calculus or other foreign body in the bladder and uterine displacement, must each be met by appropriate treatment.

(2) *To Render the Urine Bland.*—The use of milk diet as above, conjoined with the ingestion of a considerable quantity of water, will aid materially in bringing about this result. Should the urine be highly acid, a tablespoonful of potassium citrate solution (U. S. P.) given every four hours will be found useful. Its effect must be watched, however, as it sometimes, by altering the reaction of the urine, favors ammoniacal decomposition. Should the urine be alkaline or moderately acid, boric acid may be given in eight or ten-grain doses six times daily.

(3) *To Relieve Pelvic Congestion.*—It is more particularly in the chronic cases that this indication exists. The measures most worthy of confidence are the hot vaginal douche, used once or twice daily, the knee-chest position, and the employment of such agencies as will obviate any tendency to constipation.

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(4) *The Local Treatment of the Inflamed Mucous Membrane.*—The local treatment of the inflamed mucous membrane may be accomplished in two ways—by the administration, by the mouth, of drugs which shall be excreted through the kidneys, and by the injection of drugs into the bladder. The remedies which I have found most effectual for use by the mouth are boric acid, salol, oil santal, copaiba and creosote; for injection, boric acid, carbolic acid and silver nitrate. It has been my habit to prescribe, after due attention to the considerations mentioned above, six grains of boric acid, three grains of salol and one-eighth grain of extract of gentian, in capsule, every three or four hours, to which may be added one-twelfth grain of extract of belladonna. At a later stage, I add one minim of creosote. To prevent the unpleasant eructations which so frequently follow the use of creosote, dilute hydrochloric acid, in four-drop doses, taken immediately after the capsule, is almost a specific. If this treatment does not in a few days subdue the irritation of an acute case, the bladder should be washed out once or twice daily with a quart of hot water containing three drams of boric acid and thirty drops of carbolic acid. The operator's hands, the instruments used, and the patient's external genitalia, after thorough cleansing with soap and water, should be disinfected with 1-1000 mercuric chloride solution before the tube is passed into the bladder. The best form of injecting apparatus is one of which the force is merely that of gravity, either an ordinary fountain syringe or a siphon apparatus. Very convenient, because so easily portable, is the simple contrivance sold as "The Siphon Nasal Douche," which consists of a rubber tube with a metal sinker on one end, a nose piece on the other, and a hard rubber collar to fit over the edge of a vessel. Substituting for the nose a female metal catheter, or a Nèlaton catheter, one has a perfectly satisfactory instrument. If, after the employment of this treatment for a week, tenesmus and frequent urination are still quite distressing symptoms, the injection of four fluid drams of silver nitrate solution, four grains to the fluid ounce, will be of the greatest service. Before throwing in the silver solution, the bladder should be thoroughly douched with the boric-carbolic solution, and immediately after its introduction, it should be diluted by running in more of the latter. The contact of the silver salt with the vesical mucous membrane sometimes causes so much pain as to necessitate the use of an anesthetic, which need not, of course, be pushed to the stage of complete insensibility. These applications are to be repeated as long as there is present more than a slight degree of vesical irritation. Usually, not more than three or four of them will be required.

In cases of a chronic character, a ten-grain solution of silver

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nitrate may be used in the same manner and at the same intervals as in the acute disorder. It is especially in these cases of long standing that the importance of dietetic and general treatment must not be lost sight of.

Concerning the fifth and sixth indications nothing need be said in detail, as they comprise only such measures as will at once suggest themselves to every intelligent physician.

By way of illustration, I would cite the case of Mrs. A., who came under my care presenting symptoms of cystitis, which had first made their appearance one year previously, in the third month of pregnancy. During this time her life had been one of misery, the desire to urinate having been so constant and so irresistible, and the act of micturition so extremely painful, as to compel her to remain at home almost entirely. Her sleep had been interfered with to such an extent that her general health was much impaired. Upon examination I found extreme tenderness along the line of the urethra and at the neck of the bladder, and a retroflexed uterus measuring three and a quarter inches. The urine contained pus and a small quantity of blood. Constipation and dyspeptic symptoms were present. Boric acid and belladonna were prescribed, in connection with treatment addressed to the digestive organs, and the knee-chest position and hot vaginal douche were ordered to be used twice daily. Improvement followed, but it was slight. Under the use of ten-grain solutions of silver nitrate, employed in the manner described above, the patient made a most satisfactory recovery. The applications were made eight times, at intervals of three days, the date of the last treatment being March 21, 1890. In three years there has been no recurrence of trouble.

While strongly advocating direct local treatment for cases of cystitis which do not readily respond to ordinary therapeutic measures, I would emphasize the fact that it should be employed with judgment and caution. That, when observed, it is capable of doing great harm does not, in the least, militate against its value when properly used.

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MEMORANDUM.

TWO INTERESTING CASES IN OBSTETRICS.

I WAS consulted by Mrs. A., primipara, in September, 1892, on account of obstinate vomiting of pregnancy, which was soon relieved. On February 3, pains simulating those of labor appeared, suggesting premature confinement. The os was not dilated, however, and the pains subsided under treatment. On February 14, Mrs. A. suddenly lost a large quantity of water, which so frightened her that she fainted. On examination, the os was found to be undilated. More water was lost after my visit. Confinement was expected on March 10. March 9, I was called and informed that she was in labor. The os was found to be dilating, but the pains were very weak. The head reached the perineum by 8 A.M. on the 12th. As the progress was so slow, the patient was etherized and the delivery accomplished. The right hand was applied to the right cheek, so that the labor was retarded by the position as well as by the "dry birth." The special point of interest is the rupture of the bag of water three weeks before term. There was no liquor amnii at the time of delivery, and the vernix caseosa was dry.

On March 10, 1893, I was asked to see Mrs. B., who informed me she thought she had had a "slip." The attendant showed me what she had passed. The mass seemed to consist of placenta and a quantity of what looked like frog spawn or soaked tapioca, but no fetus was found. There were numerous cysts in the collection, which varied from the size of the first joint of the index finger to that of a pea. Examination revealed an enlarged uterus, with the os dilated, and from which there was considerable hemorrhage issuing. Ergotine was administered and a bichloride of mercury douche was given. The patient did not know that she was pregnant. She missed her menstrual period in November, 1892, but since that time had considerable hemorrhage every two or three weeks.

The patient made a good recovery. This appeared to me to be a case of cystic or hydatidiform degeneration of the placenta, so well described by Lusk under "Moles."

GEO. D. WESTON, M.D.

SPRINGFIELD, MASS.

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CLINICAL DEPARTMENT.

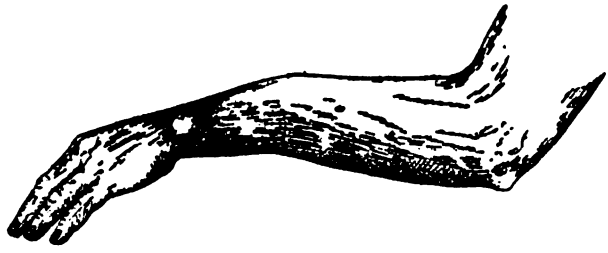
EPISCOPAL HOSPITAL.

[Services of Dr. Van Pelt and Dr. Davis.]

A Report of the Fractures Treated in the Surgical Dispensary of the Episcopal Hospital for the Month of May, 1893.

Since by the reporting of cases we gain or broaden our knowledge, it may not be out of place to add a few fractures to the list.

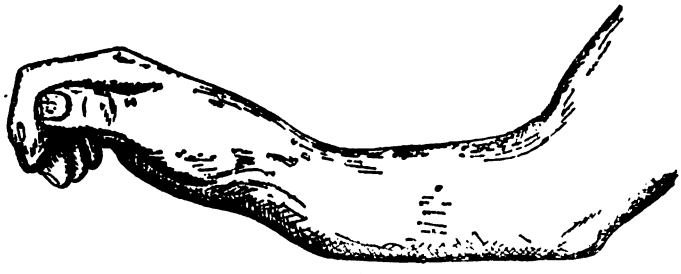
The following table gives the fractures for one month, occurring in



Deformity Caused by Fracture of both Bones of Forearm.

the services of Dr. Van Pelt and Dr. Davis, who kindly allowed me to report them, to the latter of whom I am indebted also for the drawings.

Fracture of both bones of the forearm, 5; left, 3; right, 2. Middle of bones, 2; lower third, 3. The deformity in two of the cases is shown



Deformity Caused by Fracture of both Bones of Forearm.

by cuts. In the one, that in which the bowing is on the dorsum of forearm, the woman fell down stairs with her arm behind her; the other, in which the bowing is on the anterior aspect of the forearm, was caused by a fall on the palm of the hand from a ladder. In the

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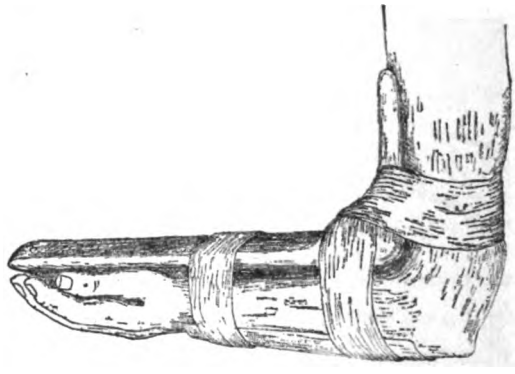
first instance union was a little delayed and the arm was taken off of the regular dressing for these fractures (shown in cut III) and dressed in plaster with the forearm in the supine position; union has taken place and a good arm is the result. All have been discharged with good results.

Fractures of the radius, 8; left, 4; right, 4; colles, 7; middle of bone, 1. All but one were caused by falls, in every case from a distance greater than three feet. One was caused by the slamming of a door which caught the forearm between the door and the sill. All were dressed on Bond's splints with compresses. In one case the dressing gave so much pain that after the third dressing, about the fifth day of the fracture, it was dressed on a straight splint (the Roser's dressing shown in cut, see also note). This dressing relieved him at once. All discharged with good results.



Dressing for Fractures of both Bones of the Forearm.

Fracture of ulnar, 1; two inches below the olecranon. The child, 8 years old, was suffering from chorea and during an increased spasm fell on the street, fracturing the bone. Dressed with an anterior right-angular splint with pasteboard moulded to the forearm opposing it. Good result.

Fracture of humerus, 2. One an inch above condyle, the other just below the anatomical neck. The first, dressed with anterior right-angled splint with pasteboard opposing; the second, with shoulder caps and pad in the axilla. Good results in each case.

Fracture of metacarpal bone, 1; middle finger, left.

Fracture of first phalanx, 1; middle finger, left.

Fractures of clavicle, 5, all left; 3, outer third; 2, middle of bone. One of latter treated with a plaster dressing (see note below); others dressed in Velpeau position with compresses.

Fracture of nasal bones, 4; depression in 2; deflection to left, 2;

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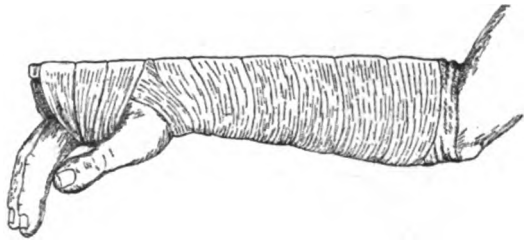
all caused by blows. One treated with pads and adhesive plaster; three with gauze and collodion, correcting the deformity and holding the nose firmly.

Fracture of ribs, 4 cases. One of 8th, 9th, 10th, 11th and 12th ribs, right (see note below); two of 9th; one of 7th. All occurring at the angle of bones, all strapped. Good results.

Fracture of fibula, 1, middle; dressed with cardboard splint, covering outer surface of leg and foot. Good result.

FRACTURE OF BOTH BONES OF FOREARM.

The dressing consists of a well padded anterior right-angled splint, held from slipping by a strip of adhesive plaster around the arm and the splint. Opposing this, on the dorsum of the arm, is a straight splint held to the first by a strip of adhesive plaster. The whole is covered in by a roller bandage. This dressing has given most satisfactory results.



Roser's Dressing for Colle's Fracture of the Radius.

COLLE'S FRACTURE.

This boy fell with his hand flexed, the dorsal surface of his fingers alone touched the ground. The dressing here, first a Bond's splint, was changed to a straight splint on the dorsal surface of forearm (Roser's dressing). The straight splint should run out as far as the knuckles and back to the bend of the elbow. It is placed on the dorsal surface of the forearm, the hand is flexed and the resulting separation between the dorsum of hand and the splint is filled in by a pad of oakum. The whole is covered by a bandage.

FRACTURE OF CLAVICLE.

The deformity in this case on admission was considerable. He was caught between two cars; the forces acting on both shoulders, bent the bone until it gave way. For two days he was dressed with a Velpeau dressing, which was then substituted by a plaster dressing. This dressing consisted of a small roll of bandage placed above, not over, the inner fragment. This roll was held in place by an adhesive strip.

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Over the shoulder was placed a piece of binder's board moulded to the shoulder and padded with cotton. This cardboard aided in holding the pad in place. A pad of oakum was placed in the axilla. The whole was covered by a roller bandage circular turns about the body and a few turns of the third roller of Désault. All this dressing was applied with the patient in the recumbent position. Lastly a plaster bandage covered the whole and was allowed to set, the patient still lying down. To pass the turns under the patient he was told to make a "bridge," that is, lift himself on his head and heels. This is easily done, and the bandage, although it seems a little difficult of application, is simple and effective.

FRACTURE OF EIGHTH, NINTH, TENTH, ELEVENTH AND TWELFTH RIBS.

This case, a man, aged 22, was trying to stop a horse and was thrown beneath the wagon, which he says weighed 1400 pounds. The wheel passed over his left shoulder and off at the right side, fracturing the eighth, ninth, tenth, eleventh and twelfth ribs at their angles. As he fell on his face the wagon passed over his back. Crepitus and tendernes were marked, no deformity. The side was strapped with circular strips crossed by strips at an angle running parallel to the ribs. It gave him great relief from the first and effected a final cure.

FRANCIS LIEBER,
Surgical Dispensary Resident.

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EDITORIAL.

THE SALTS OF STRONTIUM.

THE bromide and iodide of strontium, the most important salts of that metal, have long been known as chemical compounds, but as medicinal agents they have been in general use scarcely two years. From the relation of strontium to barium it was feared that it might possess some of the poisonous properties of the latter, and the results which followed its administration, in some instances, confirmed this apprehension. However, in 1891, Laborde, in a communication to the French Academy of Medicine, showed that in the pure state it was not poisonous, but exerted a distinctly favorable influence on nutrition. These conclusions were confirmed by Germain Sée. Subsequent research indicates that the untoward effects which followed the administration of the strontium were due to barium, with which the crude salts are not infrequently contaminated. The results obtained with the chemically pure drug seem to show that in strontium a useful addition has been made to our list of therapeutic agents.

Bromide of strontium appears as long, colorless crystals, which are freely soluble in water. It has been employed especially in epilepsy and the gastric neuroses. Féré injected the drug in rabbits and found that they would support eighty-five grammes of the strontium salt against fourteen of the corresponding salt of potassium. Dujardin-Beaumetz, Paul and Sée testify to its value in epilepsy. In seven cases of epilepsy in which Deny employed it for a period of six months, and compared the results with those obtained with similar doses of the potassium salt in the same time, he found that there was a difference of eighty-five fits in favor of the strontium treatment. Not only does it seem to be more efficacious in controlling the seizures than its companion salt, but to be free from the disagreeable effects which so often attend the use of the latter. In the *Johns Hopkins Hospital Bulletin* for May, 1893, Berkley reports his experience with strontium bromide in eleven of the worst and most regular epileptics which he could find in the City Insane Asylum of Baltimore. He concludes his report with the following statement: "The strontium bromide has claims to a considerably greater merit in lessening the number of epileptic seizures than its companion salt the bromide of sodium; but to me the improved mental condition, lessened som-

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nolence and excitability, are of far greater moment than the actual diminution of the fits. The experiment shows that the salt is worthy of an extended use, and that certain cases may be greatly benefited by it."

Sée was the first to recommend the bromide of strontium in the treatment of gastric diseases. He employed it in doses varying between thirty grains and a drachm a day, between meals, in forty-three cases of dyspepsia. In nearly every case there was an amelioration of the symptoms, and a marked diminution of the gaseous fermentation. Coronedi administered it in the solid form, in doses of thirty grains twice a day, in a number of cases of nervous vomiting, and concludes that it is a most efficient gastric analgesic. As of all the bromides that of strontium contains the least bromide, it seems that some of the analgesic effect is due to the metallic element.

The iodide of strontium has been less closely studied than the bromide, but recent experiments with it indicate that it possesses all the virtues of the potassium salt. Malbec (*Les Nouveaux Rem.*, September 24, 1892) has studied its action on the circulation, and finds that it produces a transient rise of the arterial pressure and an increase in the number of pulsations. These phenomena soon disappear, and when the use of the drug is continued the arterial pressure falls. He believes that the action of the strontium iodide is similar to that of potassium iodide, and that it can be used with more advantage than the latter when a prolonged treatment is required. He also refers to a case reported by Laborde, a woman aged 52, suffering from chronic endocarditis, with dyspnea and angina pectoris, on whom a prolonged course of the iodide of potassium was without effect, but on whom the strontium salt, in doses of one gramme a day, subsequently increased to two grammes a day, produced the most favorable results. The remedy may be prescribed in syrup of orange. One distinct advantage which the strontium possesses over the potassium salts is their freedom from irritating effects on the stomach. In one case of chronic rheumatism and two cases of plumbism which have recently been noted by the writer, the iodide of strontium was prescribed with excellent results, although the affections were associated with severe gastric catarrh. The lactate of strontium has been employed by Beaumetz, Sée, Paul and Bucquoy in albuminuria, and all agree that it distinctly lessens the amount of albumin excreted. Unfortunately, however, unless the albuminuria is the result of functional disorder the action of the drug is temporary.

In conclusion, we believe that the results obtained in these experiments with strontium salts justify a still further trial of them in the various affections which have been indicated.

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THE ONE HUNDRED AND TWENTY-EIGHTH ANNUAL SESSION OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF PENNSYLVANIA.

THE 128th Annual Session of the University of Pennsylvania will begin on Monday, October 2. The introductory address will be delivered by Dr. Pepper in the chapel at 12 o'clock, noon. It is interesting to note that it has been sixteen years since the alumni and students have had the pleasure of listening to an address of this character by the Provost; the last time being in 1877, when the course was extended from two to three years. Since that time the number of students has more than doubled itself, the corps of teachers has been considerably increased, many new studies have been introduced, and several costly buildings have been added to further facilitate laboratory and clinical instruction. Among numerous improvements may be mentioned two extensions of the University Hospital, a training school for nurses, a school of biology preparatory to medicine, a large and superbly equipped laboratory of hygiene, a commodious library, to which students from all departments of the University have access, and the Wistar Institute of Anatomy, a new building, the gift of Captain Isaac J. Wistar, which will be opened early in the fall. The most noticeable advancement in the line of higher education, however, has been the extension of the time required to obtain the medical degree. The class matriculating in October will enter upon a graded course extending over four years. In the first year four new subjects have been introduced, general symptomatology, medical history, ethics and terminology; students of the second year will no longer attend didactic lectures on practice of medicine, but otherwise their work will be the same as heretofore; in the third year the lectures on applied anatomy will be repeated; and in the fourth year all work will be clinical with the exception of didactic lectures on practice of medicine.

Under this new curriculum the work will be less crowded, much more time will be devoted to practical instruction at the bed-side, and at the end of the course it is expected that the students will be far better equipped for the practice of their profession than ever before in the history of medical education in America.

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MEDICAL PROGRESS.

MEDICINE.

UNDER THE CHARGE OF

WILLIAM PEPPER, M.D., LL.D., AND JAMES TYSON, M.D.

ASSISTED BY

M. HOWARD FUSSELL, M.D., AND WILLIAM B. FENN, M.D.

CHOLERA.

VINCENZI (*Deutsche medinische Wochenschrift*, No. 18, 1893) gives the results of his experiments with a fresh culture of cholera bacilli, as follows: (1) Pigeons and guinea pigs are killed by a minimal number of cholera bacilli. (2) The subcutaneous injection of cholera bacilli induces a severe edema which causes death in from twelve to twenty-four hours. (3) The pigeon may also be killed by the injection of a drop of blood from an animal dead of cholera septicemia. (4) Immunity may be produced by a filtrate of the culture, or by a culture heated to 140° or 238°. (5) The blood-serum of immunized animals kills the comma bacillus very quickly. (6) Other animals may be made immune by such serum. (7) The injection of cholera bacilli and blood-serum at the same time and same point has no result. (8) When a guinea pig is already suffering from cholera only injection of the serum into the blood-vessels can cure the disease. (9) The blood-serum retains its immunizing property in the dry state.

A CASE OF ACUTE FIBRINOUS BRONCHITIS.

K. ROHR (*Correspondenzblatt für Schweizer Ærzte*) describes a case of fibrinous bronchitis. The patient was 21 years old, a factory hand. She waked suddenly at night with a feeling of severe oppression in the chest. Severe coughing followed, and a large white mass was coughed out, whereupon the discomfort disappeared, and she slept again. This occurred again on the following night, and again the next afternoon. Then she came to the hospital bringing the white masses. These proved to be casts of bronchial tubes. Physical examination gave weak respiratory sound, râles and crackling in left upper chest. Toward evening patient became restless, but slept. Respiration became gradually more rapid, patient waked with orthopnea and pain in left side on breathing. Over the upper left lobe no breath sound could now be heard. About midnight came severe coughing, a cast was expectorated, and all symptoms disappeared. After a few days the attacks became more frequent, and the relief between them was only partial. After six weeks the patient died. The section showed thickening of the mitral and tricuspid valves, hyperemia of the bronchial tubes, a large infarction in the right lung, and tubercular disease of left kidney, ureter and bladder.

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The Development of Spiral Tube Casts.

Senator (ibid) believes that the corkscrew tube casts so often seen, as well as the spirals seen in sputa (Curschman's spirals), are due to the soft mass being forced from the smaller to the larger tubes under pressure. He believes that they do not arise necessarily in the spiral portion of the tubules, and that their lack of elasticity would prevent them from retaining their shape in the long descent to the pelvis. That all casts are not spiral is explained by the fact that they are not all found under high pressure, but float out easily in the urine.

Arsenical Poisoning.

Shattuck (*Boston Medical Journal*, June 1, 1893) concludes his address to the Philadelphia Pathological Society as follows:

(1) There is overwhelming evidence to show that many arsenical articles which enter into common domestic use are dangerous to health.

(2) That while it is impracticable to demand absolute freedom from arsenic in these articles, the presence of injurious quantities of the metal is quite unnecessary.

(3) That, therefore, carefully framed legislative restriction, if possible, throughout the States, is desirable.

(4) That it is the duty of the medical profession everywhere to study the question, and to lend its powerful aid in forming public opinion and otherwise securing such legislation.

Diaphragmatic Pleurisy.

(*La Riforma Medica*, Naples, May 17, 1893). Diaphragmatic pleurisy is rare in severe form, but quite common in the lighter grades. In this form it may be taken for pleurodynia, or a tender point of neuralgia. Both sides are equally often affected. The determining cause is always a microbic infection as in all pleurisies. The exudate may be purulent or sero-fibrinous. The pleurisy may be primary or secondary. The former arises from cold, traumatism, excessive labor. The secondary forms occur after influenza, typhoid, articular rheumatism, heart disease, Bright's disease, or extend from costo-parietal pleurisy, mediastinal tumors, pulmonary tuberculosis, pneumonia, hepatic abscesses, hydatid cysts, biliary calculus, perihepatitis, cirrhosis, perisplenitis, abscesses and tumors of kidney, and peritonitis. In women pelvic peritonitis is a frequent cause.

The disease begins with chilly feelings of varying intensity, followed by sweats with a rise of temperature and symptoms of fever. The most noteworthy symptom is pain, which appears with the chill or soon after, and is felt low down in the chest. The pain increases with the rise in temperature. The patient sits up in bed with body bent forward. Coughing, sneezing or speaking increases the pain. The face is anxious and cyanotic. The so-called "diaphragmatic button" is a tender spot, two fingers' breadth from the linea alba at the level of the tenth rib. This is very constant and characteristic. It can be found even when there is no spontaneous pain. There is also tenderness along the line of attachment of the diaphragm, and another very tender spot on this line near the spinal column. There is tenderness also along the course of the phrenic nerve. Cough and expectoration are as in pleurisy elsewhere. The physical signs are: Depression of the tenth rib, enlargement of that side of chest at same level, decrease of vocal fremitus, and absence of respiratory murmur. The fever subsides promptly and gradually, but the pain may continue for some time.

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Exopthalmic Goitre.

Müller (*Deutsche Archiv für klinische Medicin*, Vol. LI, Parts 4 and 5) reports five cases of the above disease, with careful autopsies in each. He reviews the various theories extant as to its cause, and concludes as follows: The development of the disease requires two factors—first, a functional anomaly of the thyroid gland; and second, a neuropathic condition, either hereditary or developed through fright or trouble. Neither of these two factors alone is sufficient to produce the disease, but they must in some way or other be combined. He looks to the further surgical treatment of the disease as a help in the settlement of this question.

Salophen.

Koch (*Deutsche medicinische Wochenschrift*, May 4, 1893) has used the above drug in many cases. It acts quickly and satisfactorily in acute articular rheumatism, and is more satisfactory than salicylate of soda and salol, because its effects are not so unpleasant. The more acute the case, the more satisfactory the action of the drug. It acts as an antipyretic in other diseases than rheumatism, and may be used in such cases in doses of fifteen to sixty grains. It is of little value as an antiseptic. Its chief use is in the great field of nervous affections, as neuralgias, pleurodynia, hemicrania, etc. In slight cases it may be used in doses of ten grains, but in severe cases the dose may be forty-five or sixty grains. It is best given in the form of powder in ten to fifteen-grain doses, and may be used as high as forty-five to eighty grains without disagreeable effects.

Treatment of Osteomalacia.

Sternberg (*Zeitschrift für klinische Medicin*, Vol. XXII, Part III, 1893) reports four cases of the above disease. Three were of puerperal origin and the fourth was a senile case. They were all treated with a solution of phosphorus in cod-liver oil, in the proportion of one to one thousand. A dessertspoonful of this mixture was given daily. In the first case improvement began immediately, and in ten months the patient was well. This patient afterward bore children, and the pregnancy did not cause a relapse. The second case was a very severe one; a fracture of the femur having taken place, the patient could not move herself in bed. Three weeks after the beginning of the treatment she could sit up in bed; three months afterward she walked a few steps; and finally recovered, with deformity. The third case was seized with the disease in her seventh pregnancy. Three months after the beginning of treatment she went to her home, where plain cod-liver oil was prescribed. Quickly the disease again manifested itself, but disappeared a second time on the re-administration of phosphorus. The fourth case was one of senile osteomalacia, which entirely recovered after several months. He also discusses removal of the ovaries as a method of cure, and concludes that when the pelvis is so deformed that the birth of a living child is impossible, the operation of oöphrectomy should be performed. The article concludes as follows: "By the record of seven personally observed cases and four recorded here, it is almost certain that we have in phosphorus a directly curative agent for osteomalacia. In individuals capable of bearing children, with a high grade of pelvic deformity, castration should be practiced. It is necessary that an early diagnosis of the disease should be made in order to prevent changes in the different organs."

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SURGERY.

UNDER THE CHARGE OF
J. WILLIAM WHITE, M.D.,
ASSISTED BY
G. G. DAVIS, M.D., M.R.C.S., AND ELLWOOD R. KIRBY, M.D.

A Modified Operation for the Relief of Undescended Testis.

Bidwell, in the *Lancet*, June 17, 1893, describes his method of operating for undescended testicle. An incision is made the same as for the radical cure of hernia, except that it is not carried into the scrotum. When possible, the testicle is squeezed out of the canal, but when this cannot be done, the fibres of the external oblique have to be divided. The tunica vaginalis is then opened and divided just above the testis; if a hernia be present its upper end is dissected up, and after being ligatured at the internal ring cut off; when no hernia is present, it is simply cut away. The fibres of the cremaster are cut across and the testicle is pulled away from the cord whilst the structures between the vas and the epididymis are carefully divided with the point of the knife. In this way the testicle becomes inverted, the vas entering at the top instead of at the bottom of the epididymis. During the separation the spermatic artery, veins and nerves are divided, and require ligature, but the artery of the vas, of course, is carefully saved. The finger is then pushed from the incision down into the scrotum, and a needle, with an eye at its point, carrying a silk ligature, thrust upward. The needle is unthreaded and passed through the extremity of the testis, then again threaded and withdrawn, thus leaving the ligature attached by its loop to the testis, and its two free ends hanging externally. These ends are fastened, by means of a rubber tube, to a wire cage, and thus constant traction is made, which drags the testis well down into the scrotum, usually by the third day. The inguinal canal is closed by Macewen's method. Three cases are given in detail, and mention is made of Watson Cheyene having used a similar procedure.—*B. M. J.*, 1890.

The Radical Cure of Hernia by Implantation of Bone.

Thiriar, in *Le Mercredi Médical*, May 24, 1893, describes his method of radical cure for hernia by the implantation of a decalcified plate of bone. After carefully isolating the sac to above the internal ring, he then ligates and resects it. On being released the stump disappears within the abdomen. Between the peritoneum and abdominal wall a plate of decalcified bone is inserted; this is well held in place by the sutures which pass through the edges of the orifice and unite the pillars. The size of this plate is larger than that of the opening, and varies from three to five centimetres long, the same in breadth, and eight to twelve millimetres in thickness. The canal is sutured shut with catgut, and then the skin, drainage being put in if desired. The author states that he has practised the operation twenty-five times in the past eight months, and as yet has had no relapses, and this notwithstanding that he has done it in the worst cases. In one of his earlier cases the plate was discharged in fifteen days, having been reduced about one-third in size. The patient, nevertheless, was cured, and remains so. The author claims that as the plate disappears, it is gradually replaced by cicatricial or strong fibrous tissue that effectually plugs the opening and prevents a recurrence.

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On the Value of Ligature of the Lingual Arteries in the Treatment of Malignant Disease of the Tongue.

In the Birmingham *Medical Review*, April, 1893, Haslam advocates the ligation of the lingual arteries in the treatment of malignant disease of the tongue. He claims that it is of benefit: (1) By retarding the growth of the disease; (2) by diminishing the amount of discharge; (3) by giving some relief to the pain; (4) by preventing hemorrhage. He also claims that the procedure is of advantage in removal of the tongue, as it prevents bleeding, and enables the operator to perform a more satisfactory operation. Ligation in malignant cases has only a limited application, as it is not suitable either when the disease is so small in extent as to be removable by the ordinary methods, or when the submaxillary region is so involved as to destroy the relation of the parts.

Removal of a Naso-pharyngeal Polyp.

Piqué, in the *Bulletins et Memoires de la Société de Chirurgie*, May, 1893, p. 258, reports a case of naso-pharyngeal polyp in a boy, aged 17 years, on which he operated. The tumor sprung from the basilar process and extended forward into the nose, but did not cause bulging either of the cheek or palate. The patient sought relief on account of the pain, hemorrhages and impediment to respiration. Tracheotomy was performed, and a Trendelenburg canula inserted, through which chloroform was administered. The operation was continued with the head in the hanging position of Rose. The roof of the mouth was incised, but not the uvula, and the mucous membrane raised from the posterior third of the bony palate. The bony parts at this situation were removed, thus exposing the tumor. With a strong raspatory the growth was removed, the hemorrhage being terrific. Packing with iodoform gauze was at once done, and controlled the bleeding. The canula and packing were both removed on the third day, and the patient made a satisfactory recovery. The operator was confident that without the preliminary tracheotomy the patient's life would have been lost. The stump of the tumor has been cauterized several times since the operation, and later it is proposed to close the opening in the palate.

Foreign Bodies in the Esophagus.

In the *Bulletins et Memoires de la Société de Chirurgie*, April, 1893, p. 182, Terrillon reports a case in which he extracted a five-franc piece from the esophagus by means of an external incision on the left side. Previous attempts to extract it by means of Græfe's coin catcher and forceps had failed. Eight years previously the author saw a case die from ulceration of a five-franc piece into the aorta, causing fatal hemorrhage. Paul Legond (p. 188) reports a case of the removal of a denture of false teeth; some difficulty was experienced by the sharp edges catching in the mucous membrane, but by using a hook the plate was turned around and then readily extracted. M. Jalagnier (p. 190) gave the details of a child, aged 2 years, who had a lead disc impacted in the esophagus. Attempts to remove it with Græfe's coin catcher resulted in the instrument itself being caught, and it was impossible to get it out. The author then fixed a sponge to a whalebone sound, greased the sponge and passed it down alongside of Græfe's instrument to the foreign body. The sponge covered over the projecting wing of the Græfe instrument and all three bodies, the sound with the sponge on its end, the Græfe extractor and the foreign body were withdrawn at once.

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Spina Bifida.

Richard (*Bulletins et Memoires de la Société de Chirurgie*, p. 198), reports a case of large spina bifida which he cured by excision. After the neck of the sac was made bare it was clamped, but convulsions of the lower extremities immediately ensued, so the clamp was removed. The sac being then opened, nervous filaments were seen, some to branch over the surface of the sac while others bent back, to again enter the spinal canal. The first were cut through, but the second were returned, and the sac cut away and the incision sewed shut with catgut sutures. Perfect recovery ensued after the removal, on two occasions, by tapping, of a small quantity of liquid.

Dermoid Cysts of Eye-brow and Sub-maxillary Space.

In the *Bulletins et Memoires de la Société de Chirurgie*, April, 1893, p. 171, are reported two cases of dermoid cysts removed from the same patient, a man, aged 34 years, by Dr. Routier. One, the smaller, was removed from the right brow. It contained more of liquid than sebaceous matter. The second cyst resembled a ranula, and was almost the size of a fist. It was first noticed fifteen years previously. It was exposed by means of an incision parallel to the jaw, and found to be covered in front by the genio-hyoid muscle. There was no attachment to the bone, and enucleation was readily accomplished.

Tibio-tarsal Arthrectomy for Pes Varus.

Schwarz, in the *Revue d' Orthopédie*, January 1, 1893, describes the case of a young woman, aged 26 years, who, having suffered from infantile paralysis at the age of 4 years, was still complaining of the foot turning inward. The author made an external incision, such as is usually employed for excision of the astragulus, and removed the under cartilaginous surface of the tibia and fibula, and enough of the upper surface of the astragulus to enable the feet to be straightened. They were then put up in plaster, no bony sutures being employed. Firm union occurred, the tarsal articulations became more movable, and the patient was enabled to walk without the aid of any appliances.

Resection of the Cecum, Greater Part of Ascending Colon and Five Inches of Ileum for Malignant Disease.

D. Lowson (*Lancet*, March 25, 1893), describes an operation which he performed for the removal of a malignant growth of the colon. A large mass involved the middle of the ascending colon, the cecum being unaffected. The parts removed embraced the greater part of the ascending colon, the cecum and five inches of the ileum. The divided edges of the colon and ileum were closed by the Czerny-Lembert suture and then a lateral anastomosis by means of Senn's plates was performed. A tube was left in a couple of days. After the operation the patient lay collapsed for several hours. One-sixth of a grain of morphine was given the same evening and one-sixth again the next morning. For two days he had nothing but hot water by the mouth. On the third day he had eight ounces of hot milk, and on the day after two pints. A light colored liquid motion was passed on the third day and regularly every day after. The last heard of the patient was that he had run a foot race and came off a victor.

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THERAPEUTICS.

UNDER THE CHARGE OF

HORATIO C. WOOD, M.D., LL.D., AND ARTHUR A. STEVENS, M.D.

Treatment of Leucemia.

Vehsevmer (*Therapeutische Monatshefte*, April, 1893) reports a case of leucemia occurring in a child aged 9 months. The treatment consisted in the administration of the tincture of barberry, and as this seemed to act favorably it was replaced by the sulphate of berberine. Five drops of a diluted alcoholic solution (3 to 3500) were given several times daily. An ointment, of which thirty parts contained one part of camphor and five of ammonium chloride, was applied to the enlarged glands. Under this treatment all the symptoms subsided, and the child rapidly improved, but unfortunately it subsequently perished from convulsions, brought on by teething.

Alumnol in Diseases of the Pharynx and Larynx.

Spengler (*Müncher medicinische Wochenschrift*, No. 13, 1893) has employed alumnol in ½, 1, 2, 5 and 10 per cent. aqueous solutions to the mucous membrane of the pharynx and larynx. In eight cases of acute and chronic pharyngitis the remedy was efficient, but was not superior to a 1 or 2 per cent. solution of chloride of zinc, although it was much more pleasant than the latter. Three cases of mild acute laryngitis were cured in from four to eight days after the application of a 20 per cent. solution. In the more severe and chronic cases of laryngitis chloride of zinc was superior to alumnol. In two cases of empyema of the antrum of Highmore injections of solutions of alumnol were followed by no improvement. In these cases, however, diaphtherin was very useful. In five cases of ozena and in three cases of empyema of the antrum diaphtherin in from ½ to 1 per cent. solution was an extremely valuable antiseptic.

Sciatica Treated by Acupuncture.

Gibson, in the *Lancet* for April 15, 1893, gives the results obtained in the treatment of 100 consecutive cases of sciatica by acupuncture. Of this number 56 per cent. were cured, 32 per cent. were much improved, and in 2 per cent. there was no improvement. The writer employs a single spear-pointed needle, two and a half inches long, and pierces the nerve about five times over spots which are most tender to the touch. The neighboring nerves, such as the external popliteal and the musculo-cutaneous, may also be pierced if painful. The puncture of such small nerves is difficult, and even if the nerve is not pierced much good results from the counter-irritation. Pain radiating along the course of the nerve indicates that the latter has been punctured. The needles should be withdrawn immediately, because if allowed to remain for any length of time their removal often causes severe pain. In addition to the acupuncture Buxton thermal water is employed for its absorbent effect, rest is enjoined, and any rheumatic or gouty diathesis treated by appropriate remedies. The author believes that if this treatment were to be employed in every case of acute or subacute sciatica one would not see such numbers of chronic and relapsing cases.

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The Treatment of Whooping-cough.

At the annual meeting of the American Pediatric Society, held at West Point, N. Y., from May 24 to 27, 1893 (*New York Medical Journal*, July 1, 1893), the treatment of whooping-cough was the subject of a special discussion. Dr. Griffith thought that cocaine in the form of a spray was sometime useful, but agreed with Dr. Holt that it sometimes produced dangerous symptoms. Dr. Osler stated that he had not found that any remedy, except perhaps quinine, exerted any marked influence on pertussis, and he should not expect a different result, for he regarded it as a specific disease running a definite course. Dr. Holt did not think any remedy shortened the course of the disease, but certain drugs decidedly lessened the frequency and severity of the paroxysms. From clinical experiments, he concluded that antipyrine, in four out of five cases, diminished the number of paroxysms, and in a smaller number lessened their severity. Its effect was temporary, but, on the whole, he had found it more efficient than phenacetine, acetanilide and similar drugs. He began by giving six grains a day to an infant of six months, gradually increasing the daily dose to eight grains. Dr. Fruitnight related his experience during the last year and a half with bromoform. He gave it in doses of one or two drops along with a little spirit as a solvent. In most cases it reduced both the frequency and the severity of the attacks. The fresh-air treatment was very important, and for the poor of the city it was a good plan to send them out on the ferryboats as much as possible. Dr. Winters stated that of drugs, codeine had served him best, given to a child of two years in doses of a twelfth of a grain every eight hours. He believed that all opiates might be given with perfect safety to the youngest and most delicate infants, if the precaution was taken to allow a sufficient interval to elapse between doses. Dr. Seibert said that the use of carbolic acid, both in the form of spray and internally, had proved useful in infants suffering from pertussis, but not in older children. The fresh-air treatment, as advocated by him, consisted in keeping the windows open all day, even in rainy weather, and at least one window at night. The ideal treatment, he considered, was the use of this method of securing plenty of fresh air, combined with the administration of large doses of quinine every night, or night and morning. Dr. Caillé stated that he insisted on plenty of fresh air, both day and night, with a dose of antipyrine at night, in the severer cases, and the systematic irrigation of the nasal cavities with boric acid solution to prevent possible infection with diphtheria. Dr. J. Lewis Smith believed that the disease was due to local infection, and accordingly had generally employed antiseptic inhalations. He had tried Moncorvo's method of applying a solution of resorcin with a brush or spray, but it had not proved uniformly successful. For older children these antiseptic solutions were conveniently carried out by letting them use Robinson's inhaler, containing creasote and terebene. He did not see how any one could doubt the efficacy of fresh air in allaying the severity of the attacks.

Calcium Chloride in Pneumonia.

Crombie (*Indian Mail Gazette*, February, 1893) reports twenty-two cases of croupous pneumonia treated with calcium chloride. Of the twenty-two only one died, and this was a child with double pneumonia. All the cases were of average severity, and the only remedy employed was the chloride of calcium, which was administered to adults in doses of from five to fifteen grains every four hours. Under this treatment the disease ran a mild course and the temperature fell almost to the normal in two or three days, so that there was a complete absence

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of the distress and danger associated with high fever. In some instances there was an extension of the pneumonic process while the patient was under treatment, and this was followed by a secondary rise of temperature, but this quickly subsided. The average mortality in 199 cases of pneumonia treated at the Demerara Emigration Hospital during the years 1889, 1890 and 1891, upon the expectant plan, was 31.6 per cent., while the mortality of the twenty-two cases which were treated with calcium chloride averaged less than 5 per cent. In a few cases of lobular pneumonia in which the writer used the drug it did not appear to be of any service. In conclusion, it is suggested that the calcium chloride either neutralizes the toxic action of the peptones circulating in the blood or the tox c principle generated by tne pneumococcus.

Phenate of Cocaine.

Oeffle (*Semaine Médicale*, No. 23, 1892) states that the ischemia and anesthesia, which follow the local application of carbolic acid, led him to combine that substance with cocaine. He has found that the analgesic effect of the combination (phenate of cocaine) lasts longer than that produced by the other salts of cocaine, and that, moreover, there is less risk of poisoning, on account of the insolubility in watery liquids of the new salt. In some cases the analgesic effect continued for thirty-six hours. He has employed this remedy in alcoholic and ethereal solutions with advantage in inflammations of the nose and throat.

Kyle (*Therapeutic Gazette*, February, 1893) also highly praises the phenate of cocaine as a local anesthetic in nasal and laryngeal operations. He has tested it in 150 cases, employing solutions varying in strength from 1 to 10 per cent. He recommends as most useful a 4 or 6 per cent. solution. According to his experience, the time required to produce anesthesia was longer than that required by the hyperchlorate of cocaine, but the action was more permanent. The average time required was about seven minutes. In no instance was there any sign of poisoning, or any bad after-effects. In addition to its anesthetic properties, the solution is a powerful antiseptic. Since it coagulates albumin, it may be employed on cut surfaces, its absorption being limited by the coagulum.

OBSTETRICS.

UNDER THE CHARGE OF

BARTON COOKE HIRST, M.D.,

ASSISTED BY

RICHARD C. NORRIS, M.D., W. REYNOLDS WILSON, M.D.,

FRANK W. TALLEY, M.D.

Concerning Symphysiotomy.

Zweifel (*Centralblatt für Gynäkologie*, No. 22, 1893), in a paper read before the Fifth Congress of the German Gynecological Association of Breslau, in May, 1893, reported fourteen symphysiotomies performed in the Leipziger Klinik. All fourteen mothers made a perfect recovery; one child died of asphyxia, and one from

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pneumonia on the second day. In ten cases the forceps was applied, each time upon the head high in the pelvis. After the operation the cases were treated expectantly until an indication for extraction occurred. In all the cases, after the incision through the skin and the separation of the perivesical tissues, the finger was introduced behind the symphysis to protect the underlying tissues from injury by the knife.

In one case it was necessary to use the saw for separating the symphysis, on account of the irregular shape of the articulating surfaces. A point of reference for the course of the symphysis is afforded by slightly elevating and lowering the legs, by which a slight motion is imparted. After a perfect section the ends of the bone separate only one-half centimetre. On cutting through the ligamentum arcuatum, a finger-breadth separation follows. Immediately a copious hemorrhage from the corpora clitoridis and the prevesical tissue takes place. This can always be controlled by tamponing with iodoform gauze, if regular pressure be exerted from the vagina. Zweifel now leaves the case to the natural processes for fourteen hours. When the head enters the narrow portion of the canal, the separation is from 6.5 to 7.5 centimetres. After the labor, the bones were sutured in the last eleven cases. There is some difficulty in the placing of the silver wire suture after laboring with the drill, as by withdrawal of the instrument the hole often fills up. To overcome this difficulty an eyelet should be made in the end of the drill for threading the wire. It is not necessary for the trochanters to be pressed tightly by assistants, as the pubic bones approximate easily of themselves by proper position of the patient. She should be placed in horizontal position, with the legs extended and the toes rotated inward. The wound should always be drained. As the tightly-drawn girdles cause considerable discomfort, Zweifel uses simply a strip of adhesive plaster around the pelvis. In three of the cases in which sutures with silver wire had been used there was incontinence of urine. In six cases sutured with catgut there was no incontinence. Zweifel believes this to have been due to irritation of the bladder by the silver wire. The patients, after convalescence, showed a slight increase in the transverse pelvic diameters.

The frequently occurring fever was unfavorable in the cases, yet in only five was this the case. Three recovered without complication. Injuries of the soft parts occurred in four cases, three of which were primiparæ. All unnecessary separation of the symphysis must be prevented. If the forceps has been applied, the handles must not be elevated in the extraction of the head; when necessary, perineal incisions may be made. Zweifel believes that when we are safely protected against the fever, which so often occurs, symphysiotomy will be accompanied with the best results.

Sugar in the Liver of the New-born.

Colrat and Fochier (*Lyon Médical*, No. 18, 1892) refer to the medico-legal value of the detection of sugar in the liver of new-born children, as an indication of quickly occurring death, such as by asphyxia, strangulation or drowning. Sugar is absent in the livers of persons succumbing to a slow, unnatural death, but is to be recognized in those dying quickly. In new-born children dying from marasmus, syphilis, diarrhea, or similar diseases, no sugar is to be found, but it can be recognized in those dying inter-partum or shortly after birth. Colrat and Fochier succeeded in recognizing sugar in the liver of a greatly decomposed corpse of a child, that had been murdered by drowning, two or three weeks previously. They believe the presence of sugar to be a valuable proof of rapidly occurring death, rendering murder of the child highly probable.

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Injuries During Labor as Cause of Puerperal Mania.

Rohé (*Medical Record*, June 18, 1892) believes that a septic infection is the cause of puerperal mania in the majority of the cases. He refers to the occurrence of mania usually about ten days after labor, almost always accompanied by elevation of temperature; and upon the frequency of previous lacerations of the perineum, tears in the cervix uteri, upon the maniacal form of the mental disturbance and the high mortality. The disturbance of the mind appears to increase on the appearance of healing of the wounds in birth-canal.

Means for the Prevention of Conception.

Ferdy (*Centralblatt für Gynäkologie*, No. 22, 1893), in considering the anatomical and physiological facts in regard to coitus, states as a result of his subjective observations, that the external orifice of the uterus exerts a leech-like suction upon the glans penis during the orgasm. He believes that the congressus interruptus, which exerts an injurious influence upon the nervous system, especially in man, plays a large part in the etiology of cervix carcinoma. He regards the use of the fish-bladder condom and the occlusive pessaries as the safest and least injurious of all the means of preventing conception.

GYNECOLOGY

UNDER THE CHARGE OF

WILLIAM GOODELL, M.D.,

ASSISTED BY

WILLIAM A. CAREY, M.D.

Tubal Pregnancy; A Calcified Fetus Badly Borne; An Intercurrent Pregnancy Terminated by an Accouchement Before Term; Extirpation of the Lithopedian by Laparotomy; Cure.

Braquehaye (*Bulletin Société Anatomique*, December, 1892) reports the case of a woman, 28 years of age, who two years previously had had suppression of the menses. Since then menstruation had been very painful and irregular, with abdominal and lumbar pain on the slightest fatigue. In January, 1892, she became pregnant and miscarried at six months. The convalescence was good. The abdominal and lumbar pains reappeared very acutely, especially at the time of the monthlies. There was much emaciation. She entered the hospital in December. In the right lateral cul-de-sac could be felt a transversely elongated mass of the volume of an egg, hard, quite smooth and movable. Nothing to the left; the uterus was deviated to the left. Diagnosis: sclero-cystic ovary. Celiotomy: There was found adherent to the great omentum a small reddish tumor of the size of an egg. This was seated in the right tube against the uterus and a little above it. Through a thin transparent membrane the parts of the fetus, of about five months, could be distinguished, in the process of calcification. Behind and below, the normal ovary was seen, and the fimbriated extremity of the tube showed nothing in particular. The tube was permeable. To the left, in the broad ligament, was a transparent cyst the size of a nut. Operation was followed by good results. There was much fluid in the fetal sac.

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Ablation of a Dermoid Cyst of the Pelvis in a Woman Six Months Pregnant.

Gardner (*Montreal Medical Journal*, 1893) reports a dermoid tumor attached to the left ovary and adherent to the walls. Its volume was that of a medium-sized orange. It contained hair, sebaceous matter and a tooth. The woman was a multipara in her fourth pregnancy at the ninth month. She suffered for six weeks so severely as to require large doses of morphine. The cyst was removed by abdominal incision, sutures of catgut introduced, and cure followed without any interruption to the course of the pregnancy.

Note on a Case of Absence of the Vagina and Uterus; Formation of an Artificial Vagina.

Albertin, in *Province Médical*, 1893, No. 14, p. 159, reports the following case: Normal conformation of the vulva; on separating the labia minora there was discovered a membrane obliterating the vagina and presenting a slight depression with a sort of central cicatrix, resembling an umbilicus. Exploration revealed an absence of the uterus and the presence of a right ovary; the left was not plainly felt. There was no history of menstruation, and for two years only a sensation of weight in the belly every month. Treatment: transverse incision of the membrane that closed the vagina, the incision being prolonged to the internal face of the labia minora, the rectum and the bladder being separated for a height of ten centimetres. A Garriel pessary, surrounded by iodoform gauze, was then inserted. Rapid cure. Twenty days later the vaginal depression measured 8–10 centimetres, and the surface was somewhat covered with mucous membrane. Eight months afterward there was marked contraction, the cavity flexible and measuring six centimetres.

Interstitial Uterine Fibromyoma; Myomectomy and Nephrectomy.

In the *Nederl. Tydschrift voor geneeskunde*, 1892, Vol. I, No. 21, Mendes de Leon reports the case of a woman of 39 years, married for eleven years, the mother of three children, the oldest ten and the youngest seven years of age. There was one miscarriage between the first two births. For the past three years the patient had noticed that her abdomen increased in size, and for one year past had detected a tumor. An operation had been advised at that time. The only symptom the patient complained of was a sense of weight, most marked after the menstrual period. Vaginal exploration showed that the tumor occupied a large portion of the pelvic cavity, especially to the right. Laparotomy was performed, and the tumor was found to be divided into two portions by a deep groove, the upper tumor extending under the liver. The mass extended between the layers of the broad ligament, and a cord running from the right posterior region and curving over the summit of the tumor, extending nearly to the pelvic region and closely simulating a distended tube, was ligated before the tumor could be removed. On examining this after amputating the tumor, it was found to be the right ureter, and nephrectomy was at once decided upon. This was done through an incision in the lateral wall of the abdomen two weeks after the first operation, a urinary fistula in the meanwhile having been established until the patient should be able to stand the second operation. The patient made a perfect recovery from both operations, and was discharged from the hospital in an excellent condition.

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Colpo-hysterectomy for Cancer of the Uterine Mucosa.

Alfred Lagarde, in *Revista de la Sociedad Medica-Argentina*, No. 6, November, 1892, presents the history of a woman, 40 years of age, whose uterus was in a turgescent condition, bleeding at the slightest contact, with a cavity measuring ten centimetres, and which a preliminary curettage showed histologically to be the seat of an epithelioma of the mucosa. Treatment consisted in a vaginal hysterectomy by Gusserow's method. The results of the operation were excellent; examination of the portion removed confirmed the previous diagnosis, and showed that the degeneration took its start from the neck.

A Case of Incontinence of Urine Treated by the Swedish Massage of Thure-Brandt.

Alfred Lagarde (ibid) also reports the case of a young woman, 17 years of age, who had given birth to four children and had aborted twice; the last confinement was difficult and lasted three days. Then followed incontinence of urine. Examination showed a utero-vaginal fistula, which was operated upon by Simon's method, a cure following; a small vesico-vagino-cervical fistula was operated upon at a second sitting. Massage according to Thure-Brandt's method was then practised; pressure against the symphysis, and vibrations produced by movements of the right hand on the thumb of the left hand. These were made not only at the level of the urethra, and of the vesical sphincter, but also upon all the accessible portions of the bladder, near the neck, by a pendulum movement of the index finger. The enuresis was cured at the end of eleven daily seánces.

Prolapsus Uteri, Cystocele and Rectocele; Triple Operation; Partial Cuneiform Amputation of the Cervix; Anterior Colporrhaphy; Colpoperineorrhaphy: Method of Hégar-Schroeder; Cure.

Maglioni (*Anales del Circulo Medico-Argentino*, November, 1892) reports the case of a woman, 62 years of age, who had given birth to nine children at term. There was prolapse of the uterus, with cystocele and rectocele. The cavity of the uterus was twelve centimetres. The external os was hypertrophied and bilacerated. Treatment consisted in (1) amputation of the cervix by Schroeder's method of cuneiform section of the posterior lip, and then of the anterior lip; (2) dissection and resection of the vaginal mucosa from the base of the urinary meatus to the anterior lip of the cervix where the incision was deepened down to the cervical canal; (3) dissection and resection of the triangle of Hégar; perineal section by Schroeder's method. Sutures; antiseptic dressing. Cure; good result.

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PATHOLOGY.

UNDER THE CHARGE OF

JOHN GUITÉRAS, M.D.,

ASSISTED BY

JOSEPH McFARLAND, M.D.

The Inflammatory Formation of New Blood Vessels.

Yamagiwa (*Archiv. f. Path. Anat.*, 1893, Bd. 132, Hft. 3, p. 446).

(1) The first extension of vessels in the inflammatory new formation of vessels always takes place from the old vessels.

(2) Budding is the only important mode of the inflammatory new formation of vessels.

(3) The canalization of the sprouts and the connecting "bridges."

(4) The nuclei of the buds and "bridges" originate through the division *in loco* or by the entrance of the pre-formed nuclei of the old vessel wall, except where some other origin (the entrance of embryonal cells, etc.) can be pointed out.

(5) The formative or embryonal cells also assist in the establishment of connection of two sprouts or capillary vessels.

Russell's Fuchsin Corpuscles and Goldman's "Kugelzellen."

Touton (*Archiv. f. Path. Anat.*, 1893, Bd. 132, Hft. 3), after a rather careful article upon these bodies, sums up as follows: "I consider this substance identical with the globuler hyaline degeneration which Klebs met in the form of bright shining drops and stoppers in the vessels in severe cases of brain disease; further, to be identical with discoveries of manassis in the cerebral vessels in infectious diseases; and those of May in the capillaries of the mucous membrane of the stomach. I can make no positive assertion upon the origin of this homogeneous substance, but consider it pretty certain that the red corpuscles take part in it. According to what I have found, I may conclude that the hemoglobin, or some albuminous body similar to the globulins, undergo a sort of a coagulation with the blood plasma, which leads to the formation of a granulo-fibrillar body of a different form, but closely related to fibrin."

The Demonstration of Cholera Bacteria in Water.

Löffler (*Sitzung des Greifswalder med. Vereins am*, December 3, 1892, *Centralb. f. Bakt. u. Parasitank.*, 1893, Bd. XIII, Nos. 11 and 12) calls attention to the mistake of considering the form of the cholera spirellum a specific diagnostic feature, as it is by no means peculiar to this organism. He suggests a new method of investigation which has proved useful. To 200 c.cm. of the water to be investigated, 10 c.cm. of alkaline peptone bouillon is added and the mixture placed in the incubator for twenty-four hours. From this plate cultures are made. The only characteristic feature is the appearance of the young colony, and the only way of studying this with satisfaction is to make plate cultures of a pure cholera spirilli at the same time and compare.

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MISCELLANEOUS.

THE WILLIAM F. JENKS MEMORIAL PRIZE.

THE Third Triennial Prize, of five hundred dollars, under the deed of trust of Mrs. William F. Jenks, will be awarded to the author of the best essay on "Infant Mortality During Labor, and its Prevention."

The conditions annexed by the founder of this prize are, that the "prize or award must always be for some subject connected with Obstetrics, or the Diseases of Women, or the Diseases of Children;" and that "the trustees, under this deed for the time being, can, in their discretion, publish the successful essay, or any paper written upon any subject for which they may offer a reward, provided the income in their hands may, in their judgment, be sufficient for that purpose, and the essay or paper be considered by them worthy of publication. If published, the distribution of said essay shall be entirely under the control of said trustees. In case they do not publish the said essay or paper, it shall be the property of the College of Physicians of Philadelphia."

The prize is open for competition to the whole world, but the essay must be the production of a single person.

The essay, which must be written in the English language, or if in a foreign language, accompanied by an English translation, should be sent to the College of Physicians of Philadelphia, Pennsylvania, U. S. A., before January 1, 1895, addressed to Horace Y. Evans, M.D., Chairman of the William F. Jenks Prize Committee.

Each essay must be typewritten, distinguished by a motto, and accompanied by a sealed envelope bearing the same motto and containing the name and address of the writer. No envelope will be opened except that which accompanies the successful essay.

The committee will return the unsuccessful essays if reclaimed by their respective writers, or their agents, within one year. The committee reserves the right not to make an award if no essay submitted is considered worthy of the prize.

POSTPONEMENT OF THE INTERNATIONAL MEDICAL CONGRESS.

PROFESSOR MARAGLIANO, Secretary-General of the Eleventh International Medical Congress, has advised Dr. A. Jacoby, Chairman of the American National Committee, of the postponement of the Congress to April, 1894.

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CORRESPONDENCE.

MATERNAL IMPRESSION.

SIR :—The July number of the UNIVERSITY MEDICAL MAGAZINE contains an illustrated memorandum giving the history of a case of abnormal fetal development—an anencephalus. The author implies that the abnormality was occasioned by an unfortunate mental impression which the mother experienced during the fifth month of pregnancy. Teratologists long since discovered that the class of monstrosities to which the case reported belongs owes its occurrence to an arrest of development of some of the embryonic arches during the very earliest stages of fetal existence. In the light of this discovery it seems to us impossible that a maternal impression occurring during the fifth month of pregnancy could have been the cause of such an abnormality. Although only one malformation can be found for ten thousand impressions, the tendency is to attribute every one to such a cause. Where is the child whose mother did not fear that it would be "marked" at birth because of something she had seen, heard, felt, dreamt or imagined during the child's intra-uterine existence?

When it is remembered that the existence of a nervous connection between the child *in utero* and the mother cannot be demonstrated, is it not unwarrantable to ascribe the occurrence of fetal malformations to the influence of the mental impressions of the unfortunate mother upon her unborn child, especially when such impressions occur during the latter half of pregnancy?

EDWIN T. SHELLY.

ATCHISON, KANSAS, July, 10.

BOOK NOTICES.

THE ANATOMY AND SURGICAL TREATMENT OF HERNIA. By HENRY O. MARCY, A.M., M.D., LL.D., Surgeon to the Hospital for Women, Cambridge, etc. New York: D. Appleton & Co., 1892.

In the preparation of this work the author has had reproduced illustrations from the works of Cooper, Scarpa, Cloquet, Camper, Darrach, Langenbeck, Bourgery, Blandin, Cruveilhier, Guthrie, Gay and others. The valuable contributions of the authors mentioned have been freely consulted, and to this Dr. Marcy has added much from his own experience. An exhaustive treatise, such as the one before us, is particularly appropriate at this time, when the question of the value of

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operations for the radical cure of hernia is being warmly discussed on both sides, and when new methods are being rapidly multiplied. The need for an accurate knowledge of this subject is well presented in the following, which we take from the text: "It may be accepted that there are few dangers to which the race is liable that become so fearfully aggravated by delay." Prompt and efficient aid at once will almost surely save life; delay or improper treatment will as surely result in the death of the patient.

The profession is to be congratulated that the works of the old masters have been made available to all by the labors of Dr. Marcy. The whole subject of hernia is discussed, and the modern methods of operative treatment are described. We confidently recommend the book to all interested in this subject.

MANUAL OF PRACTICAL MEDICAL AND PHYSIOLOGICAL CHEMISTRY. By CHARLES E. PELLEW, E.M., Demonstrator of Physics and Chemistry in the College of Physicians and Surgeons (Medical Department of Columbia College), New York; Honorary Assistant in Chemistry at the School of Mines, Columbia College, etc. Illustrated. New York: D. Appleton & Co., 1892.

The above volume is divided into nine parts. Part I treats of the carbohydrates; Part II the fats and fixed oils; Part III the proteids of albuminous bodies; Part IV the inorganic constituents of the body; Part V water analysis; Part VI animal tissues and secretions; Part VII the digestion; Part VIII the urine; Part IX microscopical examination of the urine. In addition to a lucid description of the various substances and their combinations, each section contains a full outline of laboratory experiments bearing on the subjects considered. In the preparation of the work the author has accomplished a two-fold task; he has not only furnished an exceedingly practical text-book on organic and inorganic chemistry, but a clear and accurate treatise on the chemistry of the secretions. In the chapters relating to the analysis of milk, blood, gastric juice and urine the most recent chemical tests have been included, and the description of those tests are the clearest with which we are familiar. The text is interspersed with eight plates and numerous wood-cuts. The typography, paper and binding are worthy of special comment. The work will be a valuable text-book, and as a book of reference should find a place in every physician's library.

DISEASES OF THE CHEST, THROAT AND NASAL CAVITIES. By E. FLETCHER INGALS, A.M., M.D. Second edition. Wm. Wood & Co., 1892.

This second edition of Dr. Ingals' well-known work is a model. With the important additions of etiology, pathology, symptomatology, and prognosis to this edition, the work becomes of much more value to the scientific physician, and will help to teach the "prescription doctor" that his treatment should be based on a true knowledge of the disease. The work is well written, and shows the observer and teacher. But few exceptions can be taken to any of the statements; however, the

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sentence which states that the stethoscope is of little value in the examination of children is probably not correct. It appears to the writer that one of the greatest advantages of a double stethoscope is the readiness with which small areas of the diminutive chest may be accurately examined, rather than the larger areas, necessarily auscultated by an examining ear applied to the chest. Certainly most physicians who are not experts with the stethoscope find more difficulty with the double than with the single instrument, instead of the opposite, as is stated in the text. The writer is glad to note, on page 159, the clause, "moderate dulness is frequently a normal sign over the right apex." This is doubtless true, and text-books frequently omit it, and consequently novices are constantly making a diagnosis of consolidation where none exists. Compared with this statement the one made on page 25 is not strong enough, namely, that "in the right infra-clavicular region the percussion note is nearly the same as in the left, but is slightly harder or more tubular." The last half of the book is upon diseases of the throat and nasal cavities; it is clear, concise, and gives good working rules for the examination of these cavities, and for the treatment of the diseases with which they are affected.

INTERNATIONAL CLINICS: A Quarterly of Clinical Lectures on Medicine, Neurology, Pediatrics, Surgery, Genito-Urinary Surgery, Gynecology, Ophthalmology, Laryngology, Otology and Dermatology, by professors and lecturers in the leading medical colleges in the United States, Great Britain and Canada. Edited by JOHN M. KEATING, M.D., LL.D., JUDSON DALAND, M.D., J. MITCHELL BRUCE, M.D., F.R.C.P., and DAVID W. FINLAY, M.D., F.R.C.P. Vols. I, II, III, IV. Second Series, 1892. Philadelphia: The J. B. Lippincott Company, 1892.

These four volumes contain a series of clinical lectures by some of the foremost teachers in Great Britain and the United States. Very often reports of clinical lectures are very uninteresting and incomplete, but most of these are really excellent monographs of the diseases under consideration. Unusual care seems to have been exercised by the editors in selecting authors and subjects. For the most part the authors deal with subjects upon which they are recognized authorities, and the subjects generally are of the most practical character. Among representative papers may be mentioned the following: "The Diagnosis of Pulmonary Tuberculosis," by Theodore Williams; "Paralysis Agitans," by Francis X. Dercum; "Congestion of the Kidneys and Rheumatoid Arthritis," by William Pepper; "Hernia," by Roswell Park; "Neuritis," by James W. Putnam; "Nasal Catarrh," by Beverly Robinson; "Diagnosis of Gastric Cancer," by Frederick P. Henry; "Arterial Sclerosis," by J. E. Atkinson, and "Diabetes Mellitus," by James Tyson.

Volume II is prefaced by a portrait of the late Professor Agnew, and a brief historical sketch of his life by Dr. John Ashhurst, and Vol. IV contains a portrait of the late Professor Bowditch, with a biographical sketch by Dr. Frederick I. Knight.

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DIET FOR THE SICK. By Miss E. HIBBARD, Principal of Nurses' Training School, Grace Hospital, Detroit, and Mrs. EMMA DRANT, Matron of Michigan College of Medicine Hospital, Detroit. Detroit, Mich.: The Illustrated Medical Journal Company.

This little book is a worthy supplement to any cook book, as it deals only with the dishes suitable for the sick and convalescent, the receipts being favorite ones in use daily in the hospitals wherein the authors are employed. To this has been added diet tables for the various diseases and conditions as given by the highest authorities. The physician can use it to advantage in explaining his orders for suitable dishes for his patient, leaving the book with the nurse; while to the latter the book is an invaluable assistance in preparing the diet of the sick.

DISEASE IN CHILDREN. A manual for students and practitioners. By JAMES CARMICHAEL, M.D., F.R.C.P., Ed. Illustrated. New York: D. Appleton & Co., 1892.

In this small book Dr. Carmichael has presented in an attractive style a brief resumé of disease as it is observed in children. His experience as a teacher has enabled him to treat the subject in such a clear and practical way that we regret the brevity with which many important affections have been discussed. Although the book contains nearly 600 pages, only twenty-six have been devoted to gastro-intestinal disorders, which play so important a rôle, at least in this country, in pediatric medicine.

The first three chapters of the work deal respectively with prevention of disease in children, school hygiene and pathology, and clinical examination of the child, and the final chapter treats of food and medicine. In the intervening chapters the author describes the various diseases incident to children, with special reference to the modifications which the anatomical and physiological characteristics of infancy produce in the clinical manifestations of disease. A point of excellence worthy of note is the attention which is paid to treatment; many important hints are offered which will unquestionably prove of value to the practicing physician. Altogether the book is very readable and instructive, and if more complete would be an excellent treatise for the student.

TO CONTRIBUTORS AND SUBSCRIBERS.

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